VOLTA REVIEW

VOL. XVI MARCH, 1914 NO. 3

Speech in Picture Form

The VOLTA BUREAU
WASHINGTON D·C·

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NEW YORK CITY

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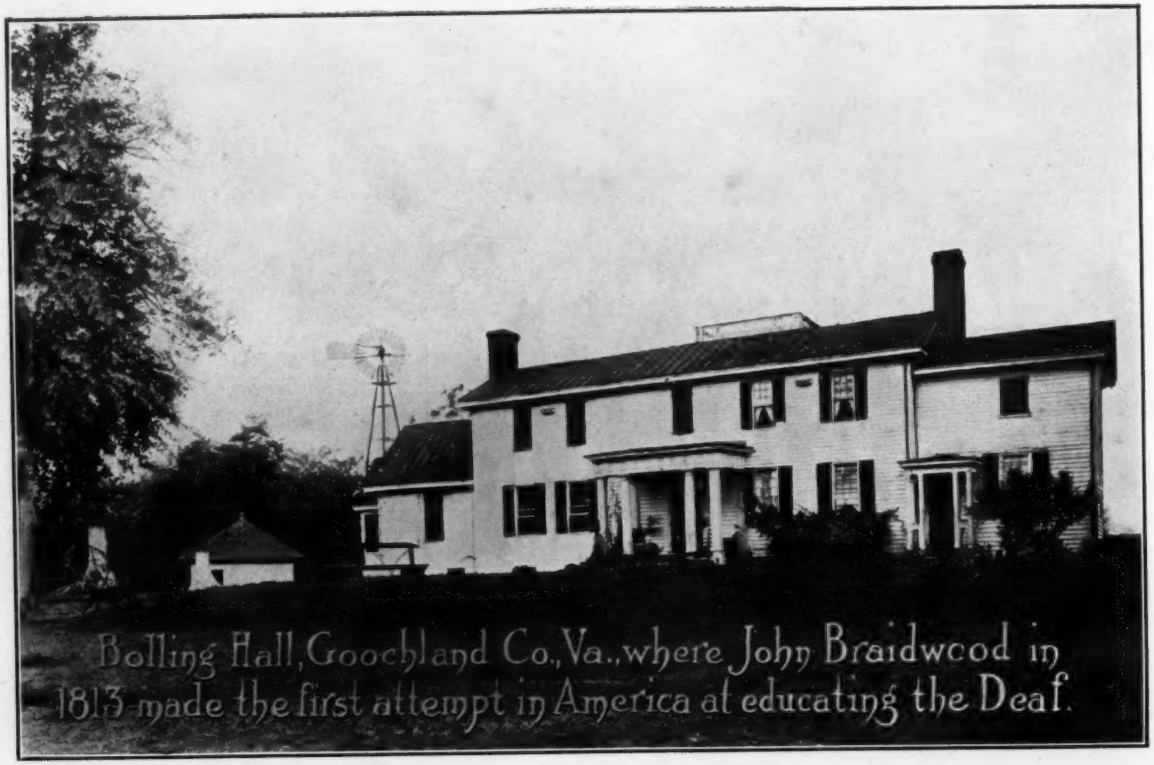

Bolling Hall, Goochland Co., Va., where John Braidwood in 1813 made the first attempt in America at educating the Deaf.

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THE VIRGINIA SCHOOL FOR THE DEAF

The Scene of the Coming Convention of American Instructors of the Deaf

BY WM. A. BOWLES, Superintendent

THE first attempt at educating the deaf in America was made at the home of Col. Wm. Bolling, Bolling Hall, Goochland County, Va., by John Braidwood in 1812-1813, but not until the year 1837 was any attempt made by the State of Virginia looking to the establishment of a school for the deaf.

In 1837 Dr. Lewis Chamberlayne, father of two deaf sons, invited Dr. Barnard (afterward President of Columbia University) to bring several deaf pupils from the New York school to demonstrate before the State legislature the method of teaching the deaf and the urgent need for doing so. After several exhibitions given in Richmond, the interest and support of some of the foremost men of the day was enlisted, and through their efforts the necessary appropriation was granted and the school buildings at Staunton made ready for occupancy in November, 1839.

The Rev. Jos. Tyler was called from the Hartford Asylum to be the first principal of the school, and among the Board of Visitors were numbered the Hon. A. H. H. Stuart, Secretary of the Interior under Millard Fillmore, and Jas. McDowell, afterward Governor of Virginia. During the four years of the Civil War the school buildings were used as a military hospital, the pupils being removed to other quarters in town, and in this move many valuable relics and records of the early life of the school were destroyed or lost.

Since 1898 the oral department of the institution has received especial attention, the effort being constantly made to lessen the difference between the deaf and the speaking world with which they must come in contact. At present about 80 per cent of the pupils are in the oral department, and only those who fail to show any aptitude for speech and lip-reading are put into the classes where silent methods are used.

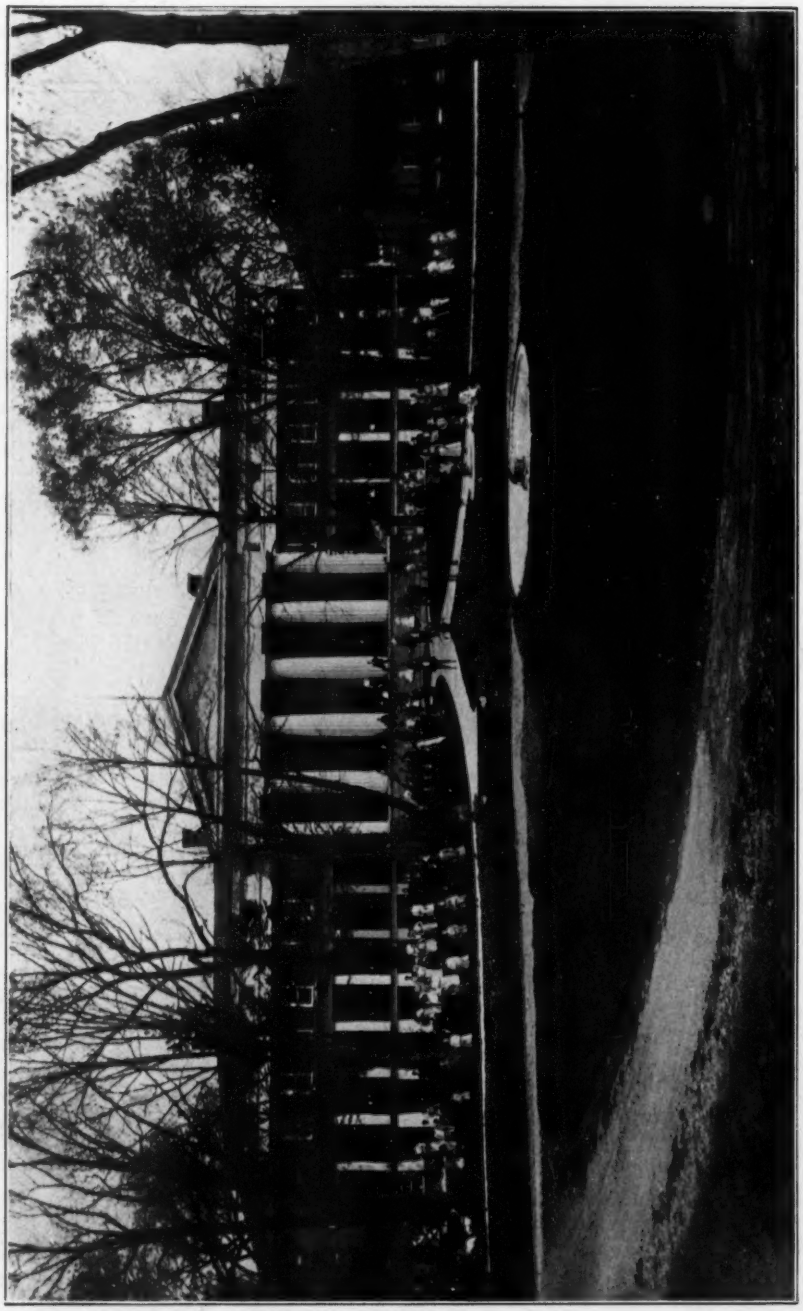
The course of instruction begins with work closely resembling the kindergarten of hearing children and later includes the subjects usually found in our public schools. Basketry and other hand-work requiring concentration and dexterity are taught in all the grades.

Boys are instructed in carpentry, cabinet-making, shoemaking, printing, and barbering, and the girls have classes in sewing, dressmaking, and cooking.

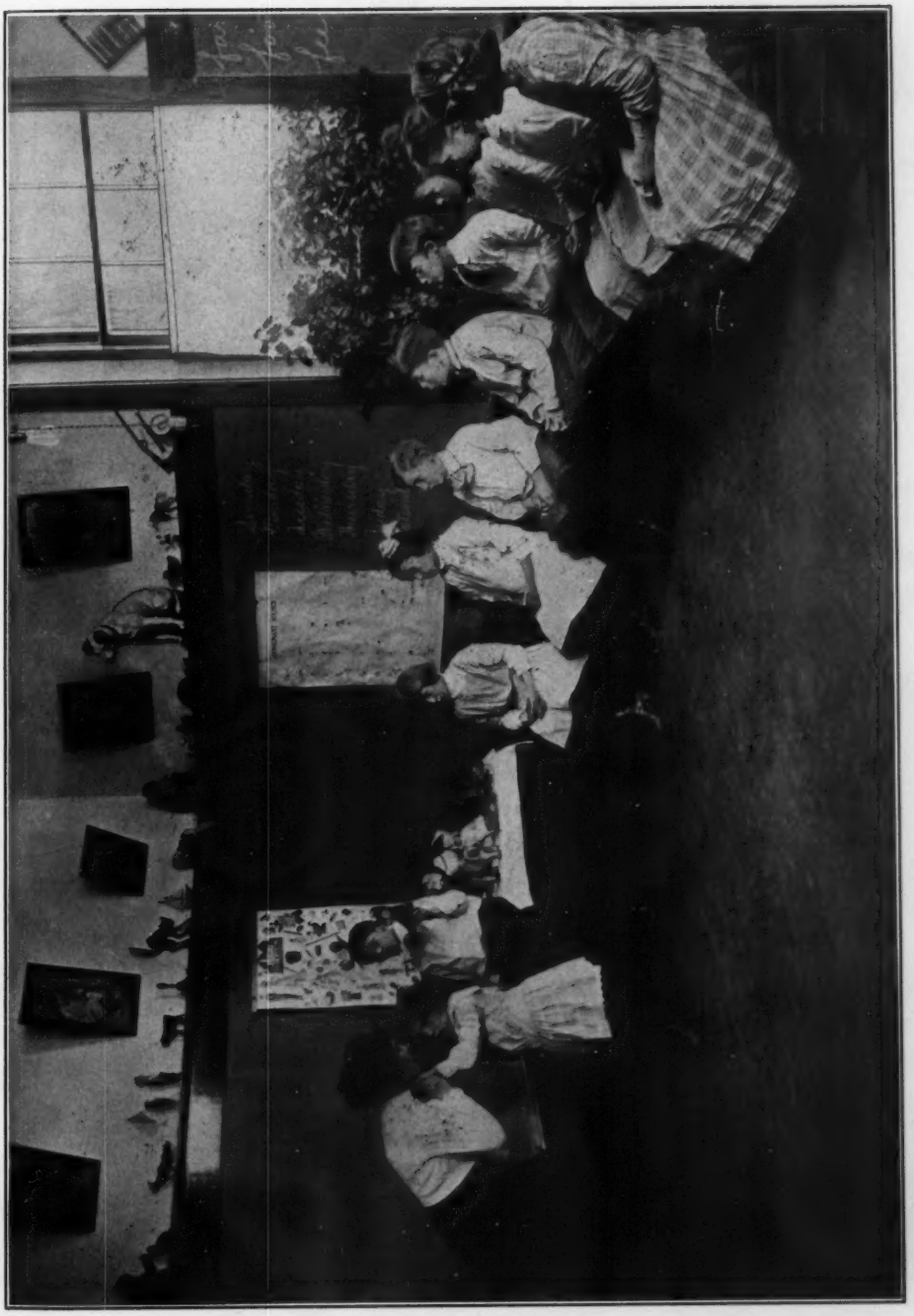
The extensive grounds of the school give to the pupils the freedom and the healthful atmosphere of the open country, and, in the separate playgrounds, apparatus for physical development has proven to be of great benefit.

LOCAL POINTS OF INTEREST

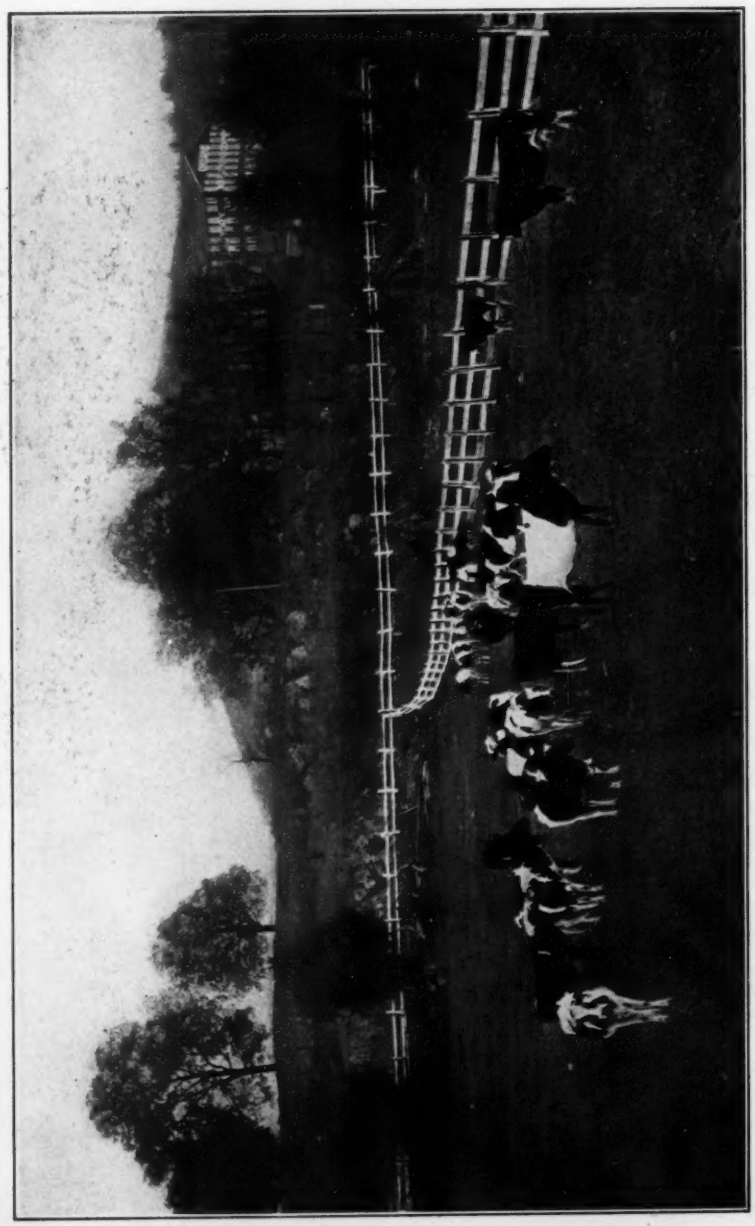
As the Virginia school is to be the scene of the twentieth meeting of the Convention of American Instructors of the Deaf, beginning on June 25, 1914, some facts concerning its location may prove of interest. Staunton, being in the Shenandoah Valley between the Blue Ridge and the Alleghany Mountains, offers peculiar attractions to the thousands



MAIN BUILDING, VIRGINIA SCHOOL FOR THE DEAF



A CLASS IN ARTICULATION



THE SCHOOL'S HOLSTEIN HERD

THE BROOM BRIGADE

of summer visitors who come to this section. In addition to being the birthplace of President Wilson, it is within a few hours' travel from numerous points of historic fame. At Charlottesville, 40 miles distant, is situated Monticello, the home of Thomas Jefferson, which looks down from a splendid elevation upon the University of Virginia, founded by Jefferson and destined to share in the education of so many illustrious men. Of equal interest is Lexington, where the Washington and Lee University, the Virginia Military Institute, and the tombs of Robert E. Lee and of Stonewall Jackson may be visited. Within easy reach are also the famous Natural Bridge, the White Sulphur Springs, and the Virginia Hot Springs. Richmond, the capital city of the Confederacy, is reached in four hours, and Washington is but five hours' distant.

CONVENTION OF AMERICAN INSTRUCTORS OF THE DEAF

To the Members of the Convention of American Instructors of the Deaf:

The next meeting of the Convention will be held at the School for the Deaf at Staunton, Virginia.

The sessions of the Convention will begin on the evening of June 25 and will continue about one week.

Circulars in detail as to the arrangements for the Convention and transportation to Staunton will soon be issued by Dr. Dobyns, chairman of the Committee on Program, and by Mr. Bowles, Local Committee at Staunton.

The members of the Executive Committee give cordial greetings to the instructors of the deaf in the United States and Canada, and express the hope that the Convention at Staunton will be large in numbers and full of interest to all engaged in the education of the deaf.

E. M. GALLAUDET,
President of the Convention.

—*American Annals of the Deaf.*

HOMOPHONY

"Would you like," he said to the editor,
"A little homophonous thing—
A something in these days of daze,
When there are certain ways of weighs,
Which lack the clearly honest ring?"

"I would not," responded the editor,
As he gave his caller the fling;
"But what I want 's the sight of a site,
Where poets have to write things right—
Say, what's a homophonous thing?"

—W. J. LAMPTON, in *Lippincott's.*

RATES OF BOARD FOR DELEGATES ATTENDING THE CONVENTION OF AMERICAN INSTRUCTORS OF THE DEAF

For those who take dormitories (each), $1.25 per day; $8.00 per week; $9.00 for 8 days.

For those who go two-to-a-room (each), $1.75 per day; $11.00 per week; $12.00 for 8 days.

Accommodations will be procured in the city at from $1.50 to $2.50 per day for those who require single rooms. *Daily rates will be charged for any fraction of a week.*

Those taking rooms in the city can reach the school by walking eight or ten squares or by taking the street cars, which come to the front gate of the school lawn. Accommodations will be reserved in the order in which the applications are received, and all are requested to specify definitely whether accommodations are wanted in the dormitories of the school, in double rooms, or at some boarding-house or hotel of the city.

Baggage will be hauled for all who board at the school at 25 cents for the two ways for each piece (large or small), where checks are delivered to an agent of the school.

W. A. BOWLES,
Superintendent.

A man whose wife's ears were not good
Often talked as no gentleman would.
But she learned to lip-read;
Then with marvelous speed
Made him see that she saw how things stood.

A NEW DEPARTURE IN FIRST-YEAR WORK

Whereby Speech Becomes the "Most Interesting Thing in the World"

BY ADELAIDE H. PYBAS

IN FEBRUARY, 1913, an experiment was begun in the kindergarten class of the Pennsylvania Oral School for the Deaf which proved satisfactory in many ways. It was undertaken because of our dissatisfaction with the voices and the spoken language of the pupils. The details of the plan are given in the paper by Miss Eleanor P. Jones, following this.

The prime essential of good speech is voice, and yet the voice has been the most neglected thing in articulation teaching. Instead of first working for definite fixed positions of separate elements, it would be more effective to use the methods of singing teachers. The first aim of these is to produce good tone correctly placed, and after this is secured they strive for clear enunciation. If all the articulation periods in a beginning class were entirely devoted to tone, voice placing, resonance, and breathing, the teacher would be building up good material from which to develop speech.

By constantly imitating the teacher as she rapidly babbles the different vowels, the child will get the idea that movements of the mouth and manipulation of the voice go together. Later he will realize that these movements which he has been doing so easily from the very beginning are really the material for the expression of language. When the child's voice is correctly placed and he knows how to raise and lower the pitch, when he is aware of head resonance, and when he can follow simple rhythm, he is ready to be taught elements as elements, words as words, and not before.

MAKING SPEECH A PLEASURE

Good teaching is largely psychological. Deaf children must do many things from suggestion, not wholly from actual observation. The pupils feel the breath or vibration as produced by the teacher and imitate it correctly, and one cannot tell just why they do, except on the theory of suggestion. The child must believe that speech-reading and speech are easy and natural before he will want to use them as a means of communication. If he has to agonize over every sound or word, he is not going to take pleasure in the process; but if the speech habit can be established in the very beginning, so that it becomes automatic and involuntary, he will continue to talk as a hearing child does. It is the first thing he has learned, also the most interesting, and he enjoys talking if it is done easily, without tremendous effort of the will and memory.

Writing is not a natural mode of communication, and the deaf child should not be burdened with writing until he has advanced to a stage where speech and speech-reading fail to meet all his conditions. In the majority of cases the written language of the deaf child, as shown in his journals and letters, is superior to his spoken language. With a hearing child the case is reversed, his spoken language being far more advanced than his written.

The usual method of developing the speech of beginning pupils is: first, speech-reading; second, speech; third, writing. As soon as the child can say a word fairly well, the word is written in his list, and his vocabulary is built of isolated words. Much time is spent in writing these words, either from objects, from dictation, or from memory. By Thanksgiving an average seven-year-old beginning class will be able to say, read, and write several words. By the end of the school year the vocabulary will number a couple of hundred words, more or less, according to circumstances. In the second year the vocabulary increases rapidly, the journals and never-failing calendar work double or treble in length, and we rejoice that at last here is a class which promises really to use language.

But in a few years, when more com-

plex forms of language are needed, when the five-slate prop is removed, we hear the familiar cry, "Why is it that this class, which started out so well, is not fulfilling the promise it gave?" Those in the primary and intermediate grades especially have heard that question.

FIXING THE SPEECH HABIT

We believe that one reason so many fall by the wayside in the use of language and speech as they grow older is because the speech habit was not *fixed* in the very beginning. We have been too anxious to get something down on paper to show and for the child to take home in June, not realizing that such work is not for the future good of the child. A person must learn a language through speech, not through reading and writing, however much these may increase the vocabulary and aid in construction. If a young hearing child is to be taught a foreign language, he is taught through conversation, not by writing and reading; he learns it by imitating the sounds he hears. A deaf child must learn language by imitating the movements of the mouth which he sees.

For an act to become a habit it must be repeated a great many times, and for a habit to become automatic and subconscious it must be repeated an infinite number of times; therefore, if a deaf child is to acquire the habit of speech, he must have the time and opportunity to talk, talk, talk. If the speech center of the brain is to be developed, it must be through speech; no other possible exercise can develop it.

PUTTING ASIDE DISTRACTIONS

Psychologists tell us to "put aside all that may distract the mind until a desired habit is well under way." Assuming that principle of psychology to be correct, it seems logical to put aside the use of written language, because the written form would distract the child's mind from the spoken form, which we hoped to fix so firmly by habit that it would become subconscious.

In our experiment all of the language time was given to speaking; by actual count a child could say *"arm"* eight times in the length of time required for him to say it once and write it once.

Everything in the class-room should be dependent upon and accompanied by speech; it should be the climax of interest on the part of the pupil, the teacher, and the visitor. If anything is to be shown off for special praise, let it be the voice at first; later, the speech. It should be the most alive and entertaining thing in the class-room. All else should be correlated, but subservient to it, until the child feels that in talking he is doing the most interesting thing in the world.

DETAILS OF WORK IN BEGINNING CLASS FROM FEBRUARY TO JUNE, 1913

BY ELEANOR P. JONES

IN GIVING words to pupils, in every instance they have been given orally, the children taking them from the oral and *not* from the written form. If in giving any combination a pupil failed to get any element from the lips, the teacher, instead of using writing to clear it up for the child, resorted to a diagram (unless it were for a short vowel).

Much stress has been laid on oral syllable drills, the teacher giving one combination at a time and the pupils answering in concert until all possible combinations have been made with one consonant, both as the initial and as the final element. Then on the same type of drill the teacher quickly gave each pupil a different syllable, using different consonants, while each child was held responsible for every syllable given to each individual. Then if a child failed to repeat a syllable correctly, another pupil was called upon to prompt him, the teacher having given the syllable but *once*.

Due to this continued syllable drill, the pupils in this class have learned to take new words more accurately and far more quickly than when developed from written combinations. Each child in this class felt responsible not alone for his combination, but for every combination the teacher gave, and it has been a pleasure to all to be allowed to correct each other. In this correction pupils have learned to concentrate and to depend upon each other as well as upon the teacher.

THE USE OF PICTURES

After new nouns have been taught the pupils, new pictures have been added to their individual hectographed books. These books contain no written words, just pictures of the nouns the pupils know, and they were used daily for vocabulary work. In doing this the child had a mental image of the spoken form in connection with the picture as well as the object and *not* of the written form of the word. The child became responsible for each noun. There was no mental picture of the written form to confuse with the spoken form.

All corrections in speech were made through imitation. If necessary for the child to actually feel the vibrations, the child's hand was placed on the teacher's chest or cheek, *not* on the throat.

All writing was limited to separate elements and combinations of elements and syllables, with no written words or written sentences. The elements and syllables have afforded plenty of opportunity for dictation work.

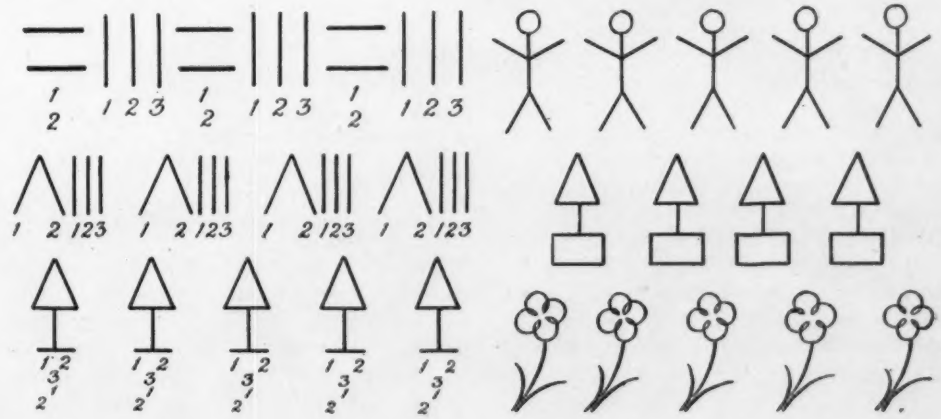
RHYTHM WORK IMPORTANT

Rhythm work has been given much attention in this class. First, this consisted of rhythmic movements of the body, as if beating time to music; then separate elements and combinations have been given in conjunction with hand-clapping; separate elements and combinations in conjunction with movements of the body; tongue gymnastics with movements of the hand, and tongue gymnastics with movements of the hand, keeping time with the swinging pendulum of the clock.

This rhythm work has been carried into the crayon work and this latter has been most successful for concentration; we called it rhythmic drawing. For instance, every pupil was given a strip of paper 2 inches wide and 10 inches long, also a long soft black crayon.

First, the teacher traced a design in the air, counting as she traced; then, to prove to the teacher that each child had properly interpreted the design, each pupil in turn traced it in the air as he counted. When every child had the correct mental picture of the design, the teacher placed her crayon on her paper and looked at the pupils, and each pupil placed his crayon on his paper and looked at the teacher. *No eyes were on the papers.* As the teacher counted, the pupils repeated the design as long as the counting continued. It was easy to prove if any pupil had been out of time by the number of designs on the paper.

The following are some of the designs that have been used successfully:



Folk-dancing, drills, marching, beating of drums, and all the above-described rhythm work have aided in more satisfactory combinations of words and in connecting the articles with the nouns. The child constantly saw the article on the lips as a part of the noun and not as a written element detached from the noun.

In preparation for language work *great* care was given to memory drills, the teacher giving orally (but once) groups of combinations, the pupils repeating these in the same order; for instance:

thar	thoo	thee
par	poo	pee
sar	soo	see
mar	moo	mee

So words and sentences were taken orally and repeated before being taught as language, as "A ball is blue; a ball is blue," etc., numberless times.

INFORMATION FROM OTHER'S SPEECH

The action work has been conducted in such a way as to encourage the children to secure information from each other's speech; for instance, every child closed his eyes. One at a time, each pupil was touched and told to perform some action, as "Shut the door," "Put five books on the floor," etc., after which he sat down and closed his eyes again. Consequently each child in the class knew the action he had performed. After each pupil in the class had done some action (no two were asked to do the same thing) they were all touched, as a signal to open their eyes, and the first child, facing the class, told what he did. The teacher then asked if they had understood the speaker. If some said "no," the *speaker* repeated his statement. Then the second child faced the class and told about his action, and the teacher again asked the pupils if they had understood. If they had not, the speaker (not the teacher) repeated. Then the third child faced the class, and so on until every pupil had described his own action. The information had come from the performer in every instance and not from the teacher. Each pupil was responsible for telling his action, and he had to get from the lips what the others did.

If for any reason the performer had not been able to properly describe his action, due to language construction, the teacher who was standing behind the class, could correct him, without being observed by any one save the speaker.

USING SPEECH

After every child had described his action, the lesson was continued in two of the four following ways:

First: One at a time each pupil stood up and talked to every other member of the class individually, saying: "You shut the door," or "You put five books on the floor," "You laughed," or whatever the child had truly done. If he forgot, the pupil to whom he was speaking prompted him.

It was surprising how many children would get around the class without being prompted once. This, of course, is extremely valuable from a memory-training point of view, but is especially beneficial to the children in urging them to read each other's lips for information. In every instance the mental image of the sentence had been from the spoken form, never from the written form.

Second: Another way of continuing the lesson was by questions, the teacher asking:

Who shut the door?
What did you do?
What did you put under the table?
How many — did — throw? etc.

Third: The third way of continuing the lesson was to call up one pupil before the class and address him as follows:

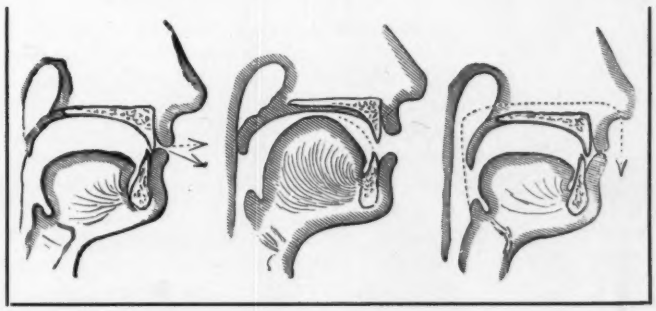
What did you do?
Tell the class what John did.
Tell John what Stanley did.
Tell me what Peter did.
Talk to Julia.
Tell Julia what Edward did.

One after another was called up until all had taken part in the exercise, giving an excellent opportunity for change from nouns to pronouns.

Fourth: The fourth way of continuing the lesson was by regular five-slate drill, acting out language, answering questions according to slates Nos. 1, 2, 3, 4, 5, *minus* any written work on the slates; for all these drills were conducted without one written word. Every bit of it has been oral, every child in the class has had an equal chance for attention and for speech work, and in every case the *mental image has been from the spoken form and not from the written form.*

DIAGRAMS AND ELEMENTS

Our diagram drill was conducted in much the same way as language-work drill. Every child closed his eyes; the teacher drew a series of diagrams on the slate, diagrams connected with a line, so that the pupils knew they were to be combined; for instance:



The first child touched (for, remember, all eyes were closed) went up to the slate, read the diagrams, returned to seat, and touched the next pupil, who in turn stepped up, read the diagrams, etc. Each child had the same length of time in which to study out the diagrams. He had to rely upon himself, for the teacher is a mere incidental in this, and he saw the lips of no other child. He has read the combination from the diagram. The teacher constantly-changed the diagram combination, giving perhaps five different combinations in each lesson and new combinations every day (never using short vowels, however).

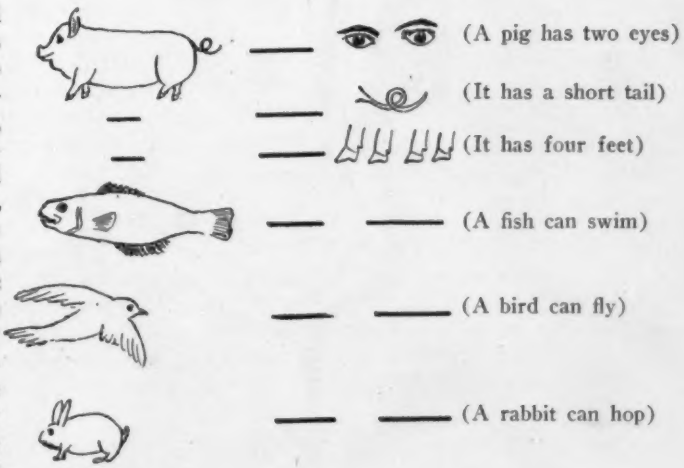
Besides this drill the pupils matched chart racks with diagram slips, read separate words from the teacher's lips, and then took from the chart racks the diagram slips in the order of the elements in the word given.

In developing pronouns, the teacher worked from pictures, sketching rapidly on the slate. Pointing to a ball, the teacher asked: "What is that?" Then drawing a line under the picture, she pointed to it and asked: "What is the same as a ball?" pupil to respond "It." The same thing was done, of course, with pictures that require the other pronouns.

SENTENCE WORK

From this exercise the sentence work was developed.

But in giving this to the pupils they had no help from a written word; the picture suggested the words as shown below:



ARITHMETIC WORK

The arithmetic work has been given according to Mrs. Driscoll's method for kindergarten classes.

Begin numbers as lip-reading.
No written figures given.
The words one, two, three, four, and five given.
Do not teach above five, even in lip-reading.
Use question—How many?—with objects. Pupil says one, two, etc.
Do not count this year.
Select groups (this is very important).
All oral work, no written work.
Teach all combinations of objects to five.
Ask quickly the results of all combinations of five.

The child stood with eyes closed while the teacher drew groups of dots on blackboard, as . .. . The child glanced at the group, the teacher erased quickly and then asked, "How many?" The pupil answered two, three, etc. We used irregular groupings, not always for five or four, placing dots in the same position.

We used the abacus and the child very quickly pointed out the number seen on the teacher's lips.

One boy, one fan, one cow, one girl, one book.
Two boys, two fans, two cows, etc.
Three boys, three fans, three cows, etc.
Four boys, four fans, four cows, etc.
Five boys, five fans, five cows.

We varied the command by saying:

Show me four shoes.
Show me three tops, etc.

We held up two balls and said, "How many?"

It is necessary to be sure the pupil *images the groups,* not the parts that make up the group.

HAND-TRAINING WORK

The hand work of the class has been most gratifying. Always the aim of the teacher has been to work in such a way that the child is learning independence.

Free-hand cutting included:

1. Teacher cuts patterns, pupils watching; pupils cut same.
2. Teacher shows pattern that was not made in class; pupils cut same.
3. Teacher shows object; pupils cut same.
4. Teacher suggests object; pupils cut same.
5. Original designs cut by pupils.

The children were constantly reminded not to waste paper. Free-hand tearing included the same rules as for cutting.

All this has led up to poster work. When the class first began the posters, the teacher cut the first detail; then the class did the same. The teacher mounted each detail; then the class did the same. Later on the teacher would show a completed poster not made in class and the pupils would make the same.

For instance, the teacher would give each child a piece of every color of construction paper that she knew to be necessary for the making of the poster. All papers were the same size. Each child was also given his own jar of paste, a pair of scissors, and a large piece of white paper for protecting the poster as each new detail was forced into place; then the completed poster (prepared out of class by the teacher) was placed in such a way that each child could see it. The teacher had no further part in the lesson, and her hands never touched the children's posters until, as completed products, they were given to her.

It was delightful to see the absolute independence with which the pupils made the truly different posters. Naturally this could not have been accomplished had not such special attention been given to the free-hand cutting and tearing of details early in the school year.

The aim of the teacher has been:

1. To create a *desire for independence* in all kinds of work.

2. To give work always orally, so that the *mental image may be made from the oral form* and not from the written form.

3. To develop the power of concentration.

OUTLINE OF WORK FOR KINDERGARTEN CLASS PENNSYLVANIA ORAL SCHOOL, FEBRUARY, 1913

1. Work for sense-training.
2. Lip-reading.
3. Gymnastics.
4. Facial and tongue gymnastics.
5. Breathing exercises.
6. Voice training.
7. Reading positions from diagrams.
8. Pupils draw diagrams.
9. Articulation (as many elements as class can take).
10. Combinations of elements.
11. Building up charts.
12. Writing (elements only).
13. Reading script and print (elements).
14. Number (Mrs. Driscoll's method).
15. Language (words and simple sentences) spoken, not written.

WORK FOR MENTAL DEVELOPMENT

1. Motion

1. Class movements in unison (standing, running, walking, etc.).
2. Gymnastics of arms, legs, etc.
3. Gymnastics of face and tongue.
4. Blowing bits of paper off the hand.
Blowing out candles.
Blowing objects suspended by a string, first light objects, then heavy ones. This is to get stronger breathing.
5. Folk-dancing for number and rhythm.
6. (*a*) Rhythmic drawing: Child draws border design, having his crayon keep time to his own saying—one, two, one, two, one, two, etc.
(*b*) Clapping hands in unison with articulated syllable, as:
far / far / far /
far / farfar / far / farfar / etc.

2. Color

1. Match color in similar objects (blocks, cards, splints, sticks, wools, ribbons, slats, balls, etc.).
2. Match colors in dissimilar objects (same objects as before).
3. Color pictures (pencils or paints).
4. String-beads, cubes, cylinders, etc.
5. Crayon color work.
6. Paint book.
7. Bean bags.
Designs for coloring: Square, circle, top, ball, pear, apple, banana, potato, fan, bowl, flower, tulips, Chinese lanterns, lanterns on strings, grass, wheat, clover, leaves, chrysanthemum, white lilac, pine needles, hemlock, spruce branch, hemlock branch with snow, vase, umbrella, pair of shoes, etc. Designs not to be cut out.

3. Form

A. *Solids*

1. Articles of similar shape, but different size recognized (blocks, balls, etc.).
2. Geometrical solids recognized.
3. Tablets recognized.
4. Length recognized (splints, sticks, etc.).

B. *Surfaces*

Paper-cutting

1. Cutting on hectographed lines.
2. Cutting out hectographed objects.
3. Cutting on folded lines.
4. Cutting out paper dolls and other pictures.
Make clear distinction between cutting on lines and free-hand cutting.
When pupils cut on lines, the perfect outlines of the object must be left intact in the paper, so that the "silhouette" can be mounted on a different colored paper; then, when the cut-out object is mounted and the "silhouette" is mounted, we have two exact objects in different colors from one cutting.
In free-hand cutting this is not required.

Free-hand Cutting

1. Teacher cuts pattern, pupil watching; then pupil cuts same.
2. Teacher shows pattern that was not made in class, pupils cut same.
3. Teacher shows object, pupils cut same.
4. Teacher suggests object, pupils cut same.
5. Original designs cut by pupils.
No paper wasted.

Making Objects

Making a turtle from a raisin and cloves.
Making a snow-man from marshmallows.
Making a rabbit with marshmallows.
Making a rabbit with prunes.
Making a pig with peanuts, etc.

Posters (follow steps exactly)

1. Teacher cuts each detail of poster, pupils do same.
2. Teacher mounts each detail of poster, pupils do same.
3. Teacher shows complete poster, pupils make same.

Free-hand Drawing of Posters

1. Teacher draws poster, pupils draw same.
2. Teacher shows completed posters, pupils draw same.
3. Pupils draw poster from picture.

Paper-tearing

1. Teacher tears pattern, pupils tear same.
2. Teacher shows pattern, pupils tear same.
3. Teacher shows object, pupils tear same.
4. Teacher suggests object, pupils tear same.
5. Original designs torn by pupils.

Do not waste paper.

Mounting

Pupils do all mounting in their books without assistance from the teacher.

Objects to be mounted:

1. Paper-folding.
2. Paper-cutting.
3. Paper-tearing.
4. Weaving mats.
5. Free-hand drawing.
6. Posters.

Mass work with rice.

Sorting beans, pebbles, seeds, shells, leaves.

Outlining hectographed object with beans, etc.

Clay modeling.

Cardboard construction.

Reproduction of outline on blackboard.

Tracing hectographed outlines and outlines on blackboard.

4. NUMBER

Begin numbers as lip-reading.

Do not teach the written figures in this class.

Teach the words one, two, three, four, five.

Do not teach above five, even in lip-reading.

Use question, "How many?" with objects. Pupil answers, one, two, etc.

Do not count this year. Select by groups.

All oral this year, no written work.

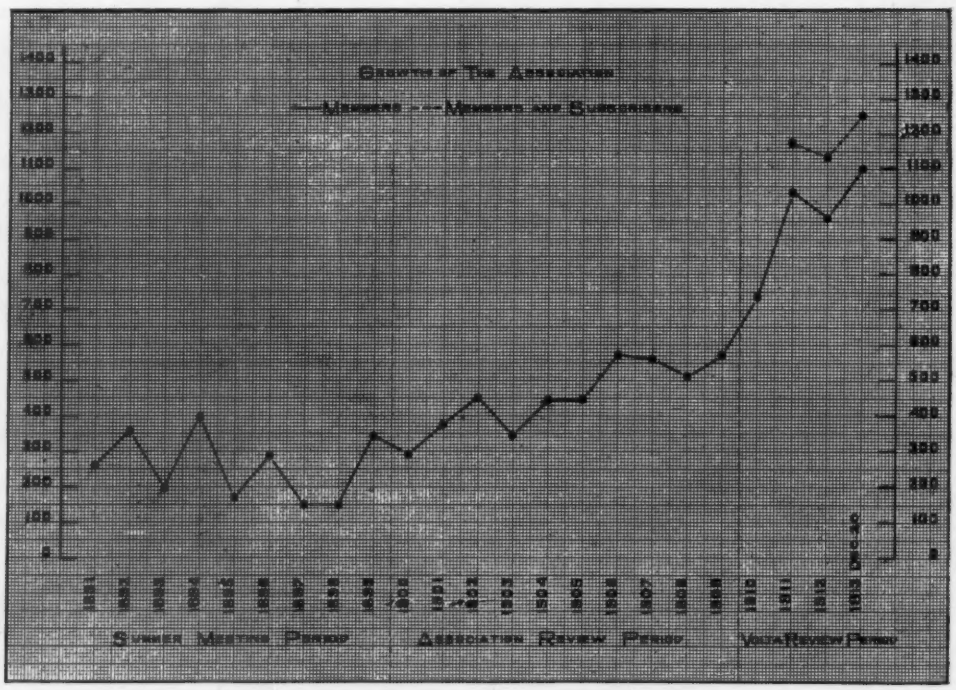
Teach combinations of objects to five.

Let child stand, with eyes closed, while teacher draws group of dots on blackboard. . .. . Child glances at group, teacher erases quickly, then asks, "How many?" Pupil says one, two, etc.

(Be sure the teacher thoroughly understands the object of this method.)

5. TOUCH: SOLIDS AND TABLETS

1. Let objects be seen, then recognized by touch.
2. Let objects be felt, then recognized by sight.
3. Let objects be recognized by touch alone.
4. Distinguish weight in articles of similar shape and size.
5. Distinguish surfaces and textures of cloth.
6. Distinguish texture and size of strings.
7. Distinguish vibrations of strings.
8. Compare this with vibration in face and chest.
9. Reproduce vibration in nose, face, and chest.



GROWTH OF THE AMERICAN ASSOCIATION TO PROMOTE THE TEACHING OF SPEECH TO THE DEAF

SPEECH IN PICTURE FORM

A collection of pictures in which artists have portrayed scenes whose beauty and fascination are due to the power of speech. Each of these speech-stimulated pictures will be found also speech-stimulating to a high degree

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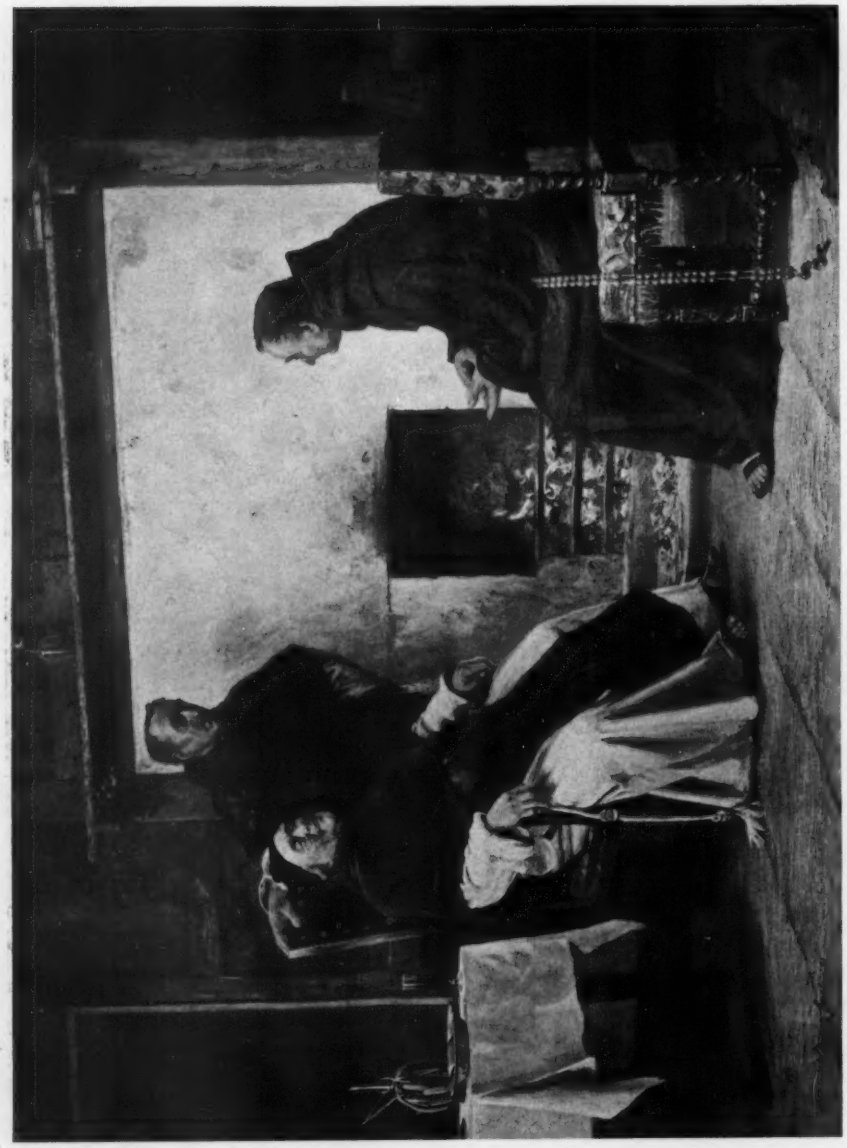

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PRINCIPLES OF SPEECH AND DICTIONARY OF SOUNDS

Including Directions and Exercises for the Cure of Stammering and Correction of All Faults of Articulation.

BY ALEXANDER MELVILLE BELL

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(Continued from the February issue)

VOWEL NOMENCLATURE.

The terms, *long, short, open, shut, slender, broad, etc.,* have been applied to vowels so unsystematically as to confuse very much the notions generally entertained with respect to vowel qualities. *Long* and *short* should be applied only to vowels which are essentially the same in formation, and which differ in nothing but duration. But we find these terms used with reference to sounds which are so different in their structure that no change of duration can assimilate them. Thus, *e* in *them* is called the "short" sound of the "long slender" *a* in *tame; a* in *man* the "short" sound of the "long open" *a* in *father; i* in *him* is called the "short" sound of the diphthong *i* in *find;* and *o* in *not,* and *u* in *but,* are called respectively the short sounds of *o* and *u,* the long sounds being heard in such words as *owe* and *you.* Of the sound of *i,* as in *him,* Mr. Walker has said, "This sound is the sound of *e,* the last letter of the diphthong that forms the long *i;* and it is not a little surprising that Dr. Johnson should say that the short *i* was a sound wholly different from the long one."

The lexicographer had, however, in this case, discriminated better than the orthoepist; for the "short i" is a distinctly different formation from either element of the "long one." Mr. Walker considers that the words *bid, lid, rid,* and *bead, lead, read,* differ only in the *quantity* of the vowel,—for *i,* he says, is but the short sound of *e;* and this theory, taken up without examination, is still to be found published and republished, in violation of what the dishonored ear would, if consulted, at once show to be the truth. Consistently with this theory, Mr. Walker calls the Scotch pronunciation, *vee-sion, decee-sion, etc.,* for *vision, decision, etc.,* simply a lengthening of the English sound. Now, the tendency of all vowels is to *open* in prolongation; but "short *i*" is more open than *e,* and would not therefore naturally be lengthened into *e.* On the contrary, if any person, guided by his ear, and not by preconceived classifications, strive to lengthen the generally short vowel *i,* in *vision, him, ill, etc.,* he will find that the tendency of the prolonged sound will be towards *a* rather than *ee.* This may be tested by singing the words to long notes.

Long and *short* are qualities that cannot be predicated as essential characteristics of any simple vowel; for every vowel may be indefinitely prolonged by those who have sufficient power over the vocal organs to retain them steadily in the vowel position. A person accustomed to the vowel in *nun,* short, as we generally have it in English, may essay in vain to prolong it with purity; but a Welshman, who is accustomed to the sound as a long vowel, will give it any degree of duration with ease.

The terms *long* and *short* are, in this work, used only with reference to the same radical sound.

It is to be observed, that the long forms of vowels have a more free and open aperture than the short ones. The modification of the mouth is the same, but *on a larger scale.* Thus the vowels in *could* and *cooed,* in *pull* and *pool,* in *very* and

vary, in *not* and *nought,* are long and short degrees of the same vowels; and the aperture of the mouth for the prolonged sounds is generally more open than for the short, while it is of the same shape, and gives essentially the same character to the voice.

Open and *shut* are terms, too, very faultily applied to vowels, as no vowels are ever *shut;* and all vowels must be *open,* if these words have any reference to the oral aperture. Vowels are said to be shut, by Mr. Walker, when they do not terminate syllables, and open, when they do, but the division of words into syllables is too arbitrary for any such distinction. Long vowels are frequently *"shut,"* and short ones *"open";* so there can be no utility in a classification so vague. Besides, the junction of an articulation does not affect the formation of the vowel; whether alone or in articulate combinations, the vowels are finished where they are produced—viz., in the glottis. Articulations subjoined affect the *length* of vowels; but the term "shut," or any other, to signify this, would be useless, as all articulations do not affect the vowels alike.

Broad and *slender,* also, are terms of no utility. They are applied to vowels utterly unlike in every characteristic of sound. *A* in *fate* is called the slender sound, and *a* in *fall,* the broad sound of the same letter. A classification founded, like this, on letters, must lead to confusion, while letters are so indiscriminately used in our orthography. We have the same letters representing half a dozen different sounds, and the same sounds represented in more than a dozen different ways.

Discarding all these names, then, we shall adopt a simple numerical notation and nomenclature for vowels. In this way we shall be the better able to fix the student's attention on *sounds,* irrespective of letters, and to direct with certainty to the practice and application of any vowel sound in connection with whatever vowel letter or combination of letters.

The following is a table of the English vowels numbered from 1 to 13. Those which, when accented, are always long, are marked (¯); those which are always short, (˘); and those which are sometimes long and sometimes short, (¯˘).

NUMERICAL NOTATION OF ENGLISH VOWELS.

1 (¯)	eel	pull, pool	(˘¯) 13
2 (˘)	ill	old	(¯) 12
3 (¯)	ale	ore	(¯) 11
4 (˘¯)	ell, ere	on, all	(˘¯) 10
5 (˘)	on	up, urn	(˘¯) 9
6 (¯)	ask	earn	(¯) 8*
	7 (¯) ah		

The above thirteen sounds are all radically different. There are, besides, in English three diphthongal combinations: 7·1—isle; 7·13—owl; 10·1—oil.

The alphabetic sound of ū (y·13) is No. 13 preceded by the articulation *y,* ū being the same in sound as *you.*

This classification of English vowels may at first sight be thought too difficult for general adoption, but it is, in reality, greatly more simple than the ordinary arrangements. True, we require a separate notation for thirteen sounds in English,—and alphabetic learners, we may be told, have, on the old plan, but five

* The precise formation of this vowel was given in the previous installment. All the other sounds fall exactly into their proper places in this arrangement.

characters to commit to memory. But *have we only five sounds?* While we possess thrice the number of vowel sounds that we have of letters, it is folly to think of teaching the sounds *by the letters.* Each letter has to be studied as representing many sounds; and a tedious enumeration of diphthongs and triphthongs, arbitrarily compounded to the eye, though generally simple to the ear, have to be committed to memory, as symbolic of an immense plurality of sounds. By our plan, thirteen sounds must be associated with thirteen invariable marks, and there the difficulty ends. We may retain our irregular orthography as long as we like, and trouble our youth little about it, if we only teach them to associate vowel *sounds* with a simple numerical notation.

To show the minute accuracy with which Pronunciation may be noted and taught by means of this vowel scheme, the following marked passage is inserted.*

7-1 2 8 2 8 2 7-1 9 8 5 6 1 9 10 10 1 10 2 2 2 2 4 4
By the† term Liberty, I understand a freedom from all responsibility except
10 11 5 2 2 8 y.13 5 1 2 9 2 12 5 2 1 12 2 2 8 2 2 2
what morality, virtue, and religion impose. That is the† only liberty which is
10 12 5 2 2 13 2 8 4 10 5 1 12 2 2 8 2 5 4 8 2 5 12
consonant with the true interests of man—the only liberty that renders his asso-
13 9 2 2 4 12 8 6 4 5 5 2 1 12 2 2 8 2 5 3 4 2
ciation with his fellows permanent and happy—the only liberty that places him
2 6 1 13 10 9 6 o 5 10 8 9 10 y.13 2 2 1 12 2 2 8 2 5 3
in a peaceful, honorab*le*,‡ and prosperous community—the only liberty that makes
2 2 9 10 6 5 5 1 13 2 5 2 2 2 4 5 2 9 4 10 6
him the son of a land that he would inhabit till his death, and the subject of a
3 5 1 13 1 4 2 2 10 8 2 5 2 9
state that he would defend with his property and his blood.

THE ASPIRATION H.

All the vowels are, of course, *vocal;* but it must be evident from preceding explanations, that the vowel positions of the lips and tongue may equally modify a *voiceless* current of breath. In this way is produced a common element of language—the aspiration H. H is simply an expulsive whisper of the vowels; the organs are adjusted to the vowel position before the aspiration of H is emitted. Thus, *h* in *he, hay, high, hoe, who* has a very different effect—just as different as that of the vowels themselves in these words. H is to the vowels,—exactly what P is to B, F to V, S to Z, etc.,—a breath variety of the same formations. How then, it may be asked, can *h* be recognized in whispering? H differs from a whispered vowel in the greater openness of the glottis, and consequent looseness of the emitted breath. In whispering a vowel or a vocal articulation, a *glottal* effort and effect are distinctly felt and heard. H is a mere expulsion of breath through the perfectly open glottis. Let this be tested in the whispered utterance of such words as *is* and *his, eel* and *heel, art* and *heart, old* and *hold,* etc., and the difference between H and a whispered vowel will be manifest.

All the elements of language then, vowel as well as articulate, may be classed under the three heads,—BREATH, VOICE, and NASAL. H represents the breath forms of the vowels; and their nasal varieties are the French elements *an, en, in, on, un,*—thus:

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* Exercises on the Numerical Vowel notation will be found in "Principles of Elocution," by A. M. Bell.

† The article *the* is pronounced th^2 before any articulation and before the 1st vowel; and generally th^1 before any other vowel.

‡ The notation indicates a *syllable* without a vowel.

GENERAL CLASSIFICATION OF THE ELEMENTS OF SPEECH.

BREATH:	VOICE:	NASAL:
H	All Vowels.	French Semi-nasal Vowels.
Voiceless Articulations.	Vocal Articulations.	Nasal Articulations.

Before entering on the theory of articulation, we must notice more fully these peculiar French sounds—to which we have hitherto merely adverted.

FRENCH SEMI-NASAL VOWELS.

This formation of vowel, common in French, finds no place in correct English utterance. The only nasal sounds in English are M, N, and NG, in forming which the voice issues entirely by the nostrils. The soft palate is depressed sufficiently to uncover the inner nasal openings and divide the stream of voice into a nasal and an oral current. The former escapes freely, the latter is stopped, by the conjoined lips, for M; by the forepart of the tongue applied to the palate, for N; and by the root of the tongue and palate for NG. M and N are heard in French, but the beautifully expressive bell-sound NG does not occur in that language. Instead of this, however, there is a series of semi-nasal sounds, represented by *an, en, in, on, un,* and by various other literal combinations. In forming these, the soft palate is depressed sufficiently to open the nasal passages, but not so much, as by contact with the tongue, to obstruct the passage into the mouth. This is the difference between the English *ng* and these French elements which give so much difficulty to English learners of French. The English *ng* brings the tongue and soft palate *in contact,* and consequently prevents the issue of breath by the mouth. NG has always, therefore, a uniform sound; it is incapable of any change of vowel quality. The French sounds, having an oral as well as a nasal passage, are capable of being affected by changes in the position of the mouth. There are four recognized varieties of them.

French grammarians evince a high antipathy to the imputation that their language contains a greater number of nasal sounds than the English. They grant the ungracefulness, generally, of such sounds, and exultingly point to the *three marks* of our nasal elements, while they have but two (*m* and *n*), as a proof that the English language has in reality the unenviable superabundance. But the French has unquestionably *six* nasal sounds, four of which are vowels, that is, they are formed by an open *position,* and not an appulsive *action* of the organs; and two are articulations. There are, therefore, in French unquestionably double the *number* of the English nasal elements. Yet, in truth, the English *three* occur as *frequently* in speech as the French six; but from their "liquid," or, as we should say, transparent nature, they are often little more than perceptible: they do not strike the ear with half the sense of nasality that the long French elements do. When the English nasals are before voiceless articulations, as in *lamp, tent, prince, inch, ink, etc.,* they are so abrupt as to be scarcely vocal: and only when they are final, or before voice articulations, as in *some, son, sung, anger, amber, wander, etc.,* are they correctly *capable* of prolongation. The numerous terminations in *ion, ing, nt, nd, nk, nce, etc.,* produce a very frequent recurrence of them, but it is in unaccented syllables, where their natural abruptness is shortened to the utmost. The French nasals, on the contrary, are never short; but, in most instances, they are the longest sounds in the language; and they linger in the unhabituated ear with an effect which makes the language seem to be almost altogether nasal. And there can be no doubt that the habit of forming sounds of this mixed character

must incline the Frenchman to give a partial nasality to many other vowels than those which are legitimately nasal.

With reference to the formation of the semi-nasal vowels, it is amusing to see the way in which the French grammarians account for their nasal quality. In a well known grammar of French Rhetoric, we find the following description of the "organic formation of French nasal vowels": "The formation of the nasal sound *appears* to be generated chiefly from the nostrils"—(all vocal sounds are generated in the glottis)—"not that the sound is *exhaled* from them, as is erroneously supposed by many, but the air, *ascending* at first from the lungs *to the nose, seems* to acquire there a nasal power; and *descending* afterwards *into the mouth,* it produces, *coming in contact with the atmosphere,* that nasal sound which, *although not very gracious,* is sometimes manly and powerful." In giving directions for the formation of these sounds, the author adds, "Let the air, by an internal motion, be sent immediately from the throat into the nostrils," * * * "it will then *descend into the mouth,* and come out with a nasal power."

What a most extraordinary power of direction the French must possess, if they thus manage to make the obedient vocal stream flow into the open nostrils without passing through them! But the thing is absurd. All the air in the nostrils will "come in contact with the atmosphere" *from* the nose; it must pass through, unless the nostrils be plugged up by snuff or polypus, pinched with the fingers, or otherwise obstructed. And though the nostrils are obstructed, the voice may still gets its "nasal power" *in* them; for, as these elements have a partial channel in the mouth, they are not liable to be more affected by nasal obstruction than to have their sound slightly muffled. In this respect they are unlike the English elements M, N, and NG, which, having no oral opening, must have a free nasal passage, or the obstructed breath will collect in the pharynx, and become percussive; so that M, N, and NG will be converted into B, D, and G, with that muffled nasal murmur with which every sufferer from "cold in the head" is quite familiar. The French grammarians indeed seem ashamed to confess their obligations to the nose, though they are clearly indebted to that organ for the modification of a large proportion of their sounds.

To show the difference in *quantity* between the English and French nasals, take any words in the two languages, having an equal number of them, and contrast their pronunciation. The English word *transcendent* contains as *many* nasal elements as the French *transcendant,* but they do not produce *one-fourth* of the *quantity* of nasal sound; and many French phrases may be found which do not contain a single oral vowel, as, for example, *"pendant long temps;" "l' enfant mangeant son pain,"* etc.

A partial nasality of vowels is one of the most prevailing features of the American dialects. Very few transatlantic speakers are perfectly free from this habit, especially when vowels precede or follow M, N. or NG. The influence of imitation, and the almost universality of the custom, render the correction of this vice, and even its recognition as a characteristic, peculiarly difficult to those who are "to the manner born."

In English, the slightest nasal quality in a vowel is an impurity and a barbarism.

ARTICULATIONS.

All actions of the vocal organs which partially or wholly *obstruct,* or which *compress* the breath or voice in the mouth, are called ARTICULATIONS. The necessary effect of such obstruction or compression is a degree of percussiveness in the breath, when the conjoined or approximated organs are separated. Hence arises an element of audibility, produced *by or within the mouth,* which we have stated to be the distinguishing characteristic of this class of the elements of speech.

When the current of breath (unvocalized) is altogether stopped by organic contact, as in P, T, K, the only audibility that the letter so formed can have is the slight puff or *explosion* which follows the separation of the organs. This must, therefore, be clearly heard, or the letter is practically lost. In the mode of producing this little effect, is involved one of the most important principles of speech,—a principle on the right application of which depends much of a speaker's distinctness, and all his ease.

Pronounce a word ending with P, T, or K,—as *lip, lit, lick,*—and endeavor to make the final letter as *long* as possible:—The effort only prolongs silence; for, until the articulating organs are separated, there is no sound of voice or breath. The *separation* of the organs, after contact, is thus necessary for these letters; and on this disjunction the compressed air within the mouth makes its escape. Now, here lies the point of importance. If only the breath *in the mouth,* and not that in the lungs, be ejected, a distinct, sharp, quick percussion will be heard, which gives to these shut breath articulations all the audibility of which they are susceptible. The issue of breath from the glottis must be checked at the instant of separation of the articulating organs. The explosive effect of the letters is thus produced with almost no expenditure of breath.

The common error opposed to this may serve to make the principle more intelligible. It consists in allowing the chest to fall, and continuing the flow of breath after the separation of the organs, as in making a prolonged H, thus:—*lip–h–, lit–h–, lick–h–,* etc. The letters are by this fault deprived of their essential percussive quality, and the resources of the strongest lungs are drained most exhaustingly, and, in public speaking, to the great injury of health.

This very faulty mechanism of these letters is almost always found in cases of *stammering;* and, in a certain degree, it prevails among all speakers who complain of weak voices, or of exhaustion from vocal effort.

Such speakers are sufferers only from ignorance. An organ of power lies dormant within them, the want of whose natural action is painfully and ineffectively supplied by unnatural and debilitating efforts of the organs of respiration. This explosive apparatus is the *Pharynx.* The Pharynx is a distensible cavity situated at the back of the mouth; below it is the glottis, in front of it the mouth, and, opening from it above, are the *nares* or nostrils. When the soft palate covers the upper pharyngeal openings—the nares,—the effort of expiration sends the breath into the *mouth,* where, if obstructed in its passage, it will collect, and *distend the pharynx* to a greater or less extent, according to the degree of oral contraction or obstruction, and the force of expiratory pressure. When the oral obstruction is complete,—as in forming P, T, K, B, D, G,—the pharynx should so dilate with the momentary pressure of breath that, on separation of the articulating organs, the natural contraction of the pharyngeal muscles effects the percussive audibility of the letters.

When the lips are in firm contact, as for P, a sufficient pressure of breath *must* cause distension either of the *cheeks,* the *lips,* or the *pharynx.* Here, then, is an outward index by which any person may direct his own practice for the acquirement of pharyngeal power. Give all possible stress to the effort of expiration while the lips are *steadily* closed, and if the cheeks and lips be not allowed to inflate, the pharynx must distend, and may be felt distending by grasping the neck close to the chin. On separating the lips, the breath within the mouth and pharynx will escape, but it should do so without further emission from the glottis. The same mode of practice may be adopted with the actions T and K, and with the correspondent *vocal* forms of these articulations, as explained farther on.

The want of pharyngeal power manifests itself in various ways: by distension of the lips and cheeks for P, B, as above noticed; by protrusion of the tongue,

with incontinency of breath, for T, D, K, G; by laborious actions of the chest to create the explosive audibility of these letters; by their frequent inaudibleness from feeble action; by scattering the saliva for S, F, and other Continuous elements; and by general indistinctness of articulation, and laxity of the lips and tongue, giving a lumpish, cumbrous, and lazy appearance to the mouth.

The continuous use of the chest instead of the pharynx is painfully fatiguing in speech; and its inordinate employment in forcible utterance is directly productive of serious injury to the lungs.

The practical effect of proper pharyngeal action and buoyancy of the chest in oratory is to enable the speaker to deliver the longest address with sustained energy, in perfect ease, and without after exhaustion. The rich orotund voice of the practiced orator is due to the elasticity of the pharynx; the finest effects of *crescendo* and *diminuendo* in singing are owing to the same cause; and the weakest voice may be greatly increased in volume by the cultivation of this important organ.

Every possible action of the mouth may modify either whispered breath or *voice,* and thus, from each action, two distinct elements of speech are produced. The classification into BREATH and VOICE ARTICULATION thus reduces the number of elementary actions of speech to half its apparent amount.

The distinction between the vocal and voiceless articulations should be clearly understood. The compilers of many well known books of reference seem to have had no knowledge of it. For instance, we find the letters P, T, K classed as "mutes," and B, D, G, as "semi-mutes." The extraordinary name of "demi-semi-vowels" has been by one author invented for the last three elements.* Sometimes the terms "sharp" and "flat," "hard" and "soft," are used; but such names are unphilosophical and worthless, as they convey no just idea of the real difference between the elements. From the existence of such a nomenclature, it would seem as if a veil of most impenetrable mystery shrouded the vocal principles from observation—or else, as if those who had invented and applied the names had never troubled themselves to become observers at all. Counterparts of the following descriptions may be found under many authorships.

"*B* is pronounced by pressing the *whole length* of the lips together, and forcing them open with a strong breath."

"*P* is formed by a slight contraction of the *anterior part* of the lips."

"*D* is a *dental* articulation, having a kind of middle sound between the *t* and *th;* its sound being formed by a *stronger* impulse of the tongue to the *upper part of the mouth* than is necessary in the pronunciation of *t.*"

"*T* is numbered among the mutes or close articulations; and it differs from *D* chiefly in its *closeness,* the *strength* with which the breath is emitted in pronouncing *t* being all that distinguishes them."

"*K* is usually denominated a guttural, but is more properly a *palatal,* being formed by pressing the root of the tongue against the *upper part of the mouth,* with a depression of the lower jaw, and opening of the teeth."

"*G* has two sounds; one called that of the *hard* G, because it is formed by a pressure, somewhat hard, of the *fore part of the tongue against the upper gum.* The other sound, called that of the soft G, resembles that of J." Then, if we turn to J, to be informed what this *indefinable* sound of soft G = J is, we are told,—"J has invariably the same sound with that of *g* in giant."

B and *P* are thus made to differ only in the *quantity* of lip compressed: *D* is said to have a *stronger* impulse of the tongue than *t,* and to be a middle sound between *t* and *th;* while, we are told, *t* is distinguished from *d* by nothing else than the *strength* with which the breath is emitted. No analogous connection is hinted at with reference to *k* and *g;* but, on the contrary, *k* is to be formed by the *root*

* See "Chambers's Elocution."

of the tongue acting upwards, and *g* by the *fore part* of the tongue acting forwards. In the latter case, the writer has evidently been thinking of the *name* of the letter (jee) while he is speaking of the "hard G," though, strangely enough, the name of the letter illustrates its soft sound. "Hard G" does not employ the fore part of the tongue, or the upper gum at all.

To those who really want the information, such careless misdirection must be most perplexing. No variation of the mode or degree of labial contact would ever convert *p*illow into *b*illow, or *b*lunder into *p*lunder; nor could any alteration of lingual pressure or strength of expiration ever make *t*ame become *d*ame, or *d*rudge *t*rudge. P and B, T and D, K and G are pairs of articulations formed by exactly the same organic motions, the only difference being in the material which the actions modify; *whispered* breath in the one case, *vocalized* breath in the other.

MODES OF ARTICULATION.

There are four modes of Articulation, performed at different parts of the mouth: I. Complete stoppage of the breath by contact of the organs. II. Lateral Obstruction and Central Emission of the breath. III. Central Obstruction and Lateral Emission of the breath. IV. Lax Vibration of the approximated organs, in a strong current of breath.

Besides these modes of articulation, in which the pharynx is more or less distended by the outward pressure of breath, there is a *Converse Series,* in which the pharynx is collapsed by inward suction. The Hottentot Clicks and certain Interjectional sounds in civilized languages are of this class.

All articulation consists of *downward* action of the articulating organ. In most cases of stammering this action is reversed, and the force of articulation is thrown upward, and made conjunctive instead of disjunctive.

The organs employed in articulation are: I. The lips, in forming P. B, M, Wh, W, in which the principal action is performed by the lower lip acting downwards from the upper lip, the latter being either retracted slightly upwards, or remaining passive. II. The lower lip and upper teeth in forming F, V, in which the lip acts downwards, the teeth being necessarily and entirely passive. III. The tip of the tongue and upper teeth in forming Th, in which the tongue necessarily performs the whole action, being drawn downwards and backwards. IV. The tongue and various parts of the hard palate in forming S, Z, R, L, T, D, N, Sh, Y, in which the palate is entirely passive, and the whole action is performed by the tongue. V. The root of the tongue and the soft palate, in forming K, G, NG, in which the action of the organs is mutual, the tongue acting downwards, and the palatal curtain acting upwards and backwards.

FIRST MODE OF ARTICULATION.

COMPLETE STOPPAGE OF THE BREATH BY ORGANIC CONTACT.

This mode of articulation is performed at three parts of the mouth: I, by the lips, forming P, B, M; II, by the fore-part of the tongue and the palate, forming T, D, N; III, by the back-part of the tongue and the palate, forming K, G, NG.

The letters P, T, K have no other sound than the slight percussion which accompanies the act of separating the conjoined organs. The vocal cords are relaxed, and the glottis open as in ordinary breathing.

A common defect in the formation of P, T, K consists in making these letters *merely stops* of the voice without any audible effect in themselves. This arises generally from feebleness of action. If the fault were confined to conversational

carelessness, it would be less worthy of notice; but it is too common even in public speaking, and it is then very manifestly a defect. Pronounce the syllables *ap, at, ak,* without the percussive finish which we have stated to be essential to the correct formation of these letters, and none but a very attentive ear will recognize a difference between them. The public speaker must not trust to such a degree of eager watchfulness in his hearers to unriddle his ambiguities. His mouth must be so trained as to utter no "uncertain sounds."

The percussive effect of T is emitted over the sides, instead of the point of the tongue, before L, as in *outlet, battle, settle,* etc.; and through the nostrils before N, as in *outnumber, kitten, mutton,* etc. When T is final in a word, the tongue is completely disengaged from the palate in finishing the articulation.

In some districts of Scotland, a very peculiar substitute for the sound of T, medial or final, is common. This consists in an abrupt and audible closure of the glottis without any articulative action. This glottal catch is heard in such words as *let, catch, better, etc.,* pronounced *lĕ', că'ch, bĕ'er,* etc.

The letters B, D, G have precisely the same oral actions as P, T, K; but while the organs are in contact, the glottis is brought into sonorous position, and an instantaneous effort of voice is heard before the separation of the organs. It is important to have the power of producing this shut voice with precision. The sound cannot be prolonged, as there is no outlet for the breath. The murmur of voice can last only until the pharynx is fully distended.

Many persons are unable to vocalize these shut articulations, and consequently, words containing B, D, G are liable to be confounded with such as have the correspondent voiceless letters in the same combinations; as *dart* and *tart, dread* and *tread, bill* and *pill, bride* and *pride, gold* and *cold, glass* and *class,* etc. The Welsh always thus mispronounce English, but a little elementary practice will supply the deficient power in any case. Care must be taken that the voice does not find vent through the nostrils.* The percussive finish of B, D, G should be the same as of P, T, K.

The above six letters (three formations) are all the articulations that completely obstruct the breath. The letters M, N, NG have the same oral positions, but the inner end of the nasal passages is uncovered by the soft palate, and, while the breath is shut in by the mouth, it escapes freely through the nostrils.

The actions of the mouth for M, N, and NG are precisely the same as for B, D, and G; and though the nasal articulations gain but little percussive audibility by the cessation of contact, yet they cannot, any more than the perfectly obstructive articulations, be considered finished until the oral organs are separated. There is breath within the mouth, pressing against the conjoined organs, and slightly distending the pharynx, as well as a free current in the nostrils; and though the *voice* may be perfectly finished by merely closing the glottis, the *Articulation* would be imperfect, if the breath within the mouth were not allowed to escape. There is thus a slight—but very slight—effect of percussion heard on the organic separation, as in *come, sun, tongue,* etc.; and when a vowel follows the articulation, this slight pharyngeal expression gives a sharpness and closeness of connection to the combination which would be wanting if the voice were stopped in the glottis before the organic disjunction. This principle is important to distinctness, and it is especially so in cases of imperfect or difficult articulation.

In finishing these nasal elements, the soft palate must not be allowed to cover the nares before the articulating organs are separated; for a momentary closure will convert M, N, and NG, into B, D, and G. A tendency to compress the breath in this way is especially felt in finishing *ng,* in the formation of which the tongue

* In Chambers's Elocution, the student is actually directed to commit this barbarism. We read as follows: "The same disposition of the organs (as for P, T, K), with the sound directed to go forth partly through the nose, and partly through the mouth, form B, D, and the sound of G in game."

and soft palate are already in contact, and so in the position for G; to which *ng* is consequently more easily convertible than the other nasals are to their corresponding shut letters.

Many English speakers, particularly Londoners, are so much in the habit of finishing *ng* with a *g*, that, even after many attempts, they are utterly unable to make the nasal element singly. *Singer, hanger,* etc., they pronounce as perfect rhymes to *finger, anger,* etc. The opposite fault prevails in Scotland, where the latter words are pronounced so as to rhyme with the former.

The three articulations, M, N, and NG, are the only elements which employ the nose in English. We have correctly no semi-nasal sounds as in French; and as there can be no other *obstructive* articulation formed by the mouth than those we have enumerated, there cannot be any other purely nasal element in any language; for the breath must be in some way orally shut in before it can be directed entirely into the nostrils.

The English nasals are all *voice* articulations. It is, of course, possible to form them with unvocalized breath, and bad speakers often do so; but our language does not recognize such sniffling among its sounds. In Gaelic there seems to be, or to have been, an aspirate form of the nasal letters; *mh* is a common digraph in that language, but it is now generally sounded v, with this peculiarity, that it nasalizes the adjoining vowel. In a peculiar Scotch affirmative, of very frequent occurrence, which may be intelligibly represented by "mh'm," the voiceless m is heard between two vocal m-s.

We have now seen, from three articulations of the mouth, no fewer than nine distinct elements of speech produced. There are in English fifteen other *articulate elements;* these are the result of nine actions, six of which are used to modify both voice and breath, and three to modify voice only.

The remaining articulations are all *Continuous;* they have central or lateral oral apertures more or less free for the emission of the breath or voice.

SECOND MODE OF ARTICULATION.

LATERAL OBSTRUCTION AND CENTRAL EMISSION OF THE BREATH.

The nine articulations already described; viz., P, B, M; T, D, N; K. G, NG; are formed, as we have shown, by organic *contact.* Similar dispositions of the mouth, but with the organs in contact only at the sides, so as to leave a central aperture for the emission of the breath, furnish a series of elements of the Continuous class.

This second mode of articulation is performed by the lips in making Wh, W; by the fore-part of the tongue and palate in forming S, Z, R; by the middle of the tongue and palate in forming Sh, Zh, Y; and by the root of the tongue and soft palate in making the German or Scotch gutteral Ch.

When the breath passes between the *anterior* edges of the lips in close approximation, the effect of the breathing resembles the sound of F. The Spanish B is articulated in this way, but with vocalized breath, its sound consequently resembling V. When the aperture of the lips is slightly enlarged by the separation of their anterior edges, and the breath passes between the *inner* edges of the lips, the effect is that of the English Wh, W; the former being the voiceless, the latter the vocal form of the same articulation. The lips must be in sufficiently close approximation to present a degree of resistance to the breath, or the W will lack that faint percussive quality which alone distinguishes it from the vowel oo (No. 13). The close resemblance of W and oo has baffled the observation of grammarians and orthoepists, and led them into confused definitions of these sounds, and of their respective classes, "Vowels" and "Consonants." W is an articulation or "Consonant," in virtue of its necessary pharyngeal or percussive effect, and oo is a vowel, in the absence of this articulative quality.

The letter W is, however, often written in English when there is no sound of the articulation, as in *owe, saw, few,* etc. W is pronounced only at the beginning of a syllable. When initial W is followed by *oo,* as in *woo, wood, wound,* etc., the combination, which is somewhat difficult to unaccustomed organs, exemplifies the difference between the articulation and the vowel of similar formation.

The effect of the articulation W may be produced with lateral apertures instead of a central opening, and the difference to the ear is scarcely perceptible. W with this formation, however, gives a constrained and severe appearance to the mouth.

The plasticity and mobility of the tongue enable that organ to take a variety of palatal approximations, and to give origin to the greater number of the articulate elements of speech. When the tip of the tongue is expanded and presented to the upper gum, so as to leave a small central aperture for the emission of the breath, the hissing sound of S is produced.

The nearly horizontal position of the tongue for this element requires the teeth to be very closely approximated,—but without touching; if the jaws are too much apart, the tongue cannot sufficiently contract the sibilant aperture, and too much breath escapes; while, if the teeth are perfectly closed, the breath strikes against the teeth, or is forced to pass through their interstices, and thus acquires a lisping modification.

The articulative position of S, giving sibilation to vocalized breath, produces Z, which differs in no wise from the oral action of S.

If the point of the tongue be depressed behind the lower teeth, and its upper surface be presented to the gum or front part of the palate, a hissing sound closely resembling S is produced, which is one of the many modes in which this element is faultily articulated.

If the point of the tongue be laid in *contact* with the teeth, gum, or palate, and the breath escape through lateral apertures, various forms of the defect called Lisping will be the result. In the most common lisp the breath is forced over the sides of the tip of the tongue, between the tongue and the teeth. In a less frequent form of this defect the breath passes over the sides of the middle of the tongue, between the tongue and the back teeth.

When the tip of the tongue is narrowed and presented without contact to the upper gum or front part of the palate, the passage of the breath causes the tongue to quiver or vibrate more or less strongly, and the sound of R is produced. R, as pronounced in England, differs from Z merely in the narrowing and retraction of the point of the tongue. In Scotland, in Spain, and on the Continent generally, R receives a stronger vibration of the whole fore-part of the tongue.

R in English is always a *vocal* element, but it may, of course, be pronounced without voice. The existence of Rh in our orthography would seem to indicate that this voiceless R has been at one time an element in our speech. In Gaelic, Welsh, and many other languages it is still heard. R is so pronounced in French, when final after a Voiceless articulation; as after t in *theatre,* c in *fiacre,* etc.

R is liable to many faults of articulation, the principal of which are a *labial* seat, instead of, or in connection with, the lingual formation, giving the effect of w or of w combined with R; and a *guttural* seat, producing the common defect called *Burring.*

If, from the position R, the point of the tongue be depressed and drawn inwards, so as to remove the seat of articulation *further back* on the tongue and palate, the sound of *Sh* will be produced. This articulation modifying *voice* produces the sound of the letter Z in *azure,* or S in *pleasure,* which, as the *vocal* form of *Sh,* may be conveniently represented by *Zh.* This is the sound of the letter J in French. The English J has the sound of Dzh, as in Jew; the voiceless correspondent of this compound (Tsh) is written Ch, as in *chew.*

The change of lingual position from S to Sh is analogous to that from the

anterior position of the lips in which the breathing resembles F to the inner and larger aperture of Wh. The breath in Sh and Wh has a semi-whistling sound. A further enlargement of the aperture of either element produces a lingual or labial sonorous *whistle.*

If the back part of the tongue be now raised to the back of the palatal arch, leaving a small central aperture for the breath, the tongue will be in the position for the articulation of Y, as heard without voice in *hue, hew,* (= Yhyoo), etc., and, with voice, in *you, use, cue, pew, tune, duke,* etc. This is almost the position for the vowel ee (No. I). The difference between ee and the articulation Y is exactly the same as that between oo and W, already noticed. The compression of the vocal current through a contracted aperture, and the faint percussive effect on the separation of the organs constitute the articulative quality of Y, while the absence of this pharyngeal effect constitutes the vowel quality of ee.

Y, like W, has its articulative pronunciation only at the beginning of a syllable in English. In other positions, the letter Y is a vowel sign, equivalent to I.

When initial Y is followed by ee, as in *ye, year, yield,* etc., the combination, which is difficult to unpractised organs, illustrates the difference between the articulation and the vowel of similar formation.

The approximation of the root of the tongue to the soft palate at the back of the mouth, gives the last variety of the Second Mode of Articulation. This guttural breathing is not heard in English. It is common in the Scottish dialects, as the sound of ch in *loch,* etc.; and in the German, Spanish, and many other languages.

This articulative position, with vocalized breath, produces an element heard in the Russian, Arabic, and other strongly aspirated languages, and not uncommon in England as the smooth Burr, a cacophonic substitute for R, which bears the same relation to the rough Northumbrian uvular rattle that the smooth English R does to the strongly trilled Continental or Scottish R. The smooth Burr is very common in some parts of France and Germany as the favorite vulgar pronunciation of R.

THIRD MODE OF ARTICULATION.

CENTRAL OBSTRUCTION AND LATERAL EMISSION OF THE BREATH.

This mode of articulation is performed by the lower lip in making F, V; by the point of the tongue in forming Th and L; by the middle of the tongue in the sound of L before ū, as in *lute;* and by the root of the tongue and soft palate in making a peculiar sound of L heard in Gaelic.

The characteristic effect of F is very closely imitated by the sound of the breath passing between both lips, either through a central aperture, or through contracted lateral apertures. F is correctly formed by applying the middle of the lower lip to the edge of the upper front teeth, leaving merely interstitial apertures for the breath between the sides of the lip and teeth. The same articulative position modifying vocalized breath produces V.

The works already quoted from, which state P to be formed by a "slight compression of the *anterior part* of the lips," make the formation of F to consist in "compression of the *whole lips,* and a forcible breath." Certainly the writer never could have pronounced his own Ps, or fashioned his own Fs, consistently with this theory. Strange that people will not appeal to their own mouths, to test the correctness of descriptions, before copying, thus, the careless and conflicting testimony of books!

The *tip of the tongue* applied to the edge or the inner surface of the *upper teeth,* with *contracted lateral* apertures for the passage of the breath between the tongue and teeth, gives the formation of *th,* as heard (without voice) in *th*in, and (with voice) in *th*en.

The *fore-part of the tongue* applied to the palate, with very open apertures

over the sides of the tongue, produces L. This articulation is always *vocal* in English, but, in Welsh, the voiceless form of L is a very common element—represented by *ll*. The voice channels of the English L are so open that there is no vibratory effect created by the passage of the breath. The sound is as pure as that of any vowel,† and, but for the *action* necessary to complete the element, it would be classed among the vowels. The fluency with which L combines with other articulations has given it (with *n, m, ng*) the name of *liquid*.

A form of L with *contracted apertures*, and consequently, with a rustling sound produced by the passage of the breath between the sides of the tongue and the teeth, is often met with among individual peculiarities, as a substitute for S and Z, to which it bears a very rude resemblance. A similar formation, but with the apertures at the back of the mouth, between the sides of the root of the tongue and the soft palate, occurs in Gaelic. This is a peculiarly difficult articulation to unaccustomed organs.

FOURTH MODE OF ARTICULATION.

LAX VIBRATION OF THE APPROXIMATED ORGANS.

Another set of articulations,—if they are worthy of the name,—is produced by so *loosely* approximating the organs that a sufficiently strong current of air causes them to *vibrate* and *flap against each other*.

When *the back of the tongue* and *soft palate* are thus loosely approximated, the relaxed edges of the latter, and especially its narrow prolongation, the *uvula*, are easily thrown into vibration against the tongue, and the Northumbrian *burr* is produced. When the *fore-part of the tongue*,—similarly relaxed,—is laid along the edge of the palatal arch, a smart stroke of the breath will set it in vibration, and the rough R, as heard in Scotland and in most of the continental languages, will result. This sort of articulation may be performed, too, by the *lips*. If they lie loosely together, a strong breath will produce upon them the barbarous effect of a vibration, or flapping, precisely analogous to that of the burr and the rough R. This sound is heard in Scotland in the herd-boy's call to a cow (pwray, leddie;) and it is sometimes used as a rude interjectional utterance of impatience—a form of pooh-poohing—probably by all people.

The absence of this sound from general language, while the two kindred sounds—the trilled R and the uvular Burr—are common, results, no doubt, from the greater difficulty of producing the labial vibration; as the force of the breath is dissipated in the mouth before it reaches the lips.

R is called the canine, or dog's letter; but the name is strictly applicable only to the *burr*, which is precisely the same in mechanism as the *snarl* of a cur. There is not much dignity in this mode of articulation by any organism, though the lengthened R (not the burr) may be expressive enough in some words, as in the *"rude rolling of a rebel drum."*

The polishers of continental language might do well to imitate the English in their treatment of this cur-related sound, and, as Macbeth did physic, *"throw it to the dogs."*

CLICKS, OR ARTICULATIVE SUCTIONS.

These sounds have been described (p. 135) as forming a converse series to the ordinary obstructive elements. In the latter, as in all the articulations of civilized languages, the pharynx is distended. In the clicks—which are actual elements of speech in some African dialects—the pharynx is collapsed, and the separation of

† All the vowel sounds may be produced with the tongue on the palate, as in L. The lateral apertures can be sufficiently modified to form every shade of sound, from *e* to *ah;* and, with the aid of the lips, from *ah* to *oo;* and the intermediate varieties of vowel sound can also be very correctly imitated without removing the point of the tongue from the palate. There is, even, very little peculiarity in the vowels—singly produced—by this mechanism.

the oral organs produces an inward percussion of air. These sounds are frequently made by stammerers in their untutored efforts to articulate; and they are also in common interjectional use among all people.

The first of the Clicks is formed on the lips: it is a P with reversed pharyngeal action. This sound is heard—with a slightly prolonged effect—in the common call to a dog; and it is familiar to everybody as the audible part of the act of kissing.

The second Click is formed on the point of the tongue: it is a T with reversed percussion. This sound, reiterated, is universally known as an interjection of vexation.

The third of the Clicks is formed from the position T, by disengagement of the sides of the tongue, with reversed action of the pharynx: it is the reverse of a T as that letter is articulated before L. This sound is in continual use by drivers as an encouragement to the motion of a horse.

The fourth and last of the Clicks is formed from contact of the whole upper surface of the tongue with the roof of the mouth. The tongue is disengaged by drawing down the root first, the tip last; and, as the point of the tongue leaves the palate, a peculiar flap is heard, such as ventriloquists use in their imitation of the pouring out of liquid from a narrow necked bottle.

The following Table exhibits all the varieties of Articulations in the order in which they have been described:

GENERAL SCHEME OF ARTICULATIONS.

ARTICULATIONS.			BREATH.	VOICE.	NASAL.	
	OBSTRUCTIVE.		P	B	M	1st Mode.
			T	D	N	
			K	G	Ng	
	CONTINUOUS.	Central Emission.	(Ph)	(Bh) (Spanish B)		2d Mode.
			Wh	W		
			S	Z		
			(Rh)	R (smooth English)		
			Sh	Zh		
			Yh	Y		
			Ch (German)	Gh (smooth burr)		
		Lateral Emission.	F	V		3d Mode.
			Th(in)	Th(en)		
			Ll(Welsh)	L		
			=	L' (before ũ)		
			=guttural	L (Gaelic)		
		Lax Vibration	(ĸRh) (snarl)	ĢR (rough burr)		4th Mode.
			R(h)	R (rough trill)		
			=lip vibration			

The nasals are placed on the same line with their relative obstructives, to show that their oral mechanism is the same; but M, N, and Ng are in *effect* Continuous elements.

Of these various articulations, twenty-four (twelve actions) are elements of English speech. One, however,—the rough R,—is used only for purposes of effect and imitative expression.

The following Table exhibits the English articulations in the order of their formation; beginning with those that are formed furthest within the mouth, and proceeding outwards to the labial articulations.

ENGLISH ARTICULATIONS.

BREATH.	VOICE.	
ORAL.	ORAL.	NASAL.
1 K	2 G	3 NG
4 Yh(*h*ew)	5 Y	=
6 Sh	7 Zh	=
=	8 R (rough)	=
=	9 R (smooth)	=
=	10 L	=
11 T	12 D	13 N
14 S	15 Z	=
16 Th(in)	17 Th(en)	=
18 F	19 V	=
20 Wh	21 W	=
22 P	23 B	24 M

We have elsewhere shown (page 67) the defective way in which these twenty-four articulations are represented by our alphabet. The alphabet contains almost a sufficient number of characters; for it has 21 letters to represent this class of elements; but two of these,—namely, C and Q—are altogether redundant; and two more—namely, J and X—are marks of combinations, and not simple elements; and so we have, in reality, only seventeen appropriate characters by which to write all our articulations. With what irregularity these letters are used in the notation of our language will be seen in a subsequent chapter.

(To be continued)

ANOTHER LIP-READING LYRIC

He said, "Come with me on the links."
You see a golfing fiend was he,
Who wished to show his loved one fair
His hard-earned golf dexterity.

But she, who read words from the lips,
Cared not upon a lynx to ride;
She thought her swain must crazy be,
And in great haste ran off to hide.

You may complain this tale I tell
Has not the ring of truth to you.
I only know the error broke
The links of love's chain 'twixt these two.

PHONETICALLY WRITTEN STORIES IN THE MELVILLE BELL SYMBOLS

THE PIED PIPER

ɜɥʃ∩ɒɛɹo
-ɯʌɨʇƐɹɯ ɑʇɛɜʊʇɯɛɹɒ ɑɪɛʌɹʃɛɹɯʌʌɐɹɹɐʌɪɔ
ɑɯʌɯɔʊʍɐɪɯʃ ɑɹʃʌɔʊɨʇɔƐɹɯʌʌɐɹɹɐʌɪ ɑɯʌɯɔʊʍɐɪɯʃ
-ɹɯʌɪ ɔʌʃƐʌɪʌɯɔɹʃʌɯʌɹɒ ɐɹɯʌɹʃɛɨo ɹʃɛɯɔɹɯʌɹʃɛ
ɯʌɨʇɯɒʎɐʃɹɯʌʌɐɪ ɐɹoʌɨʇɯ
-ʃɛ ɑɯʌɯɔʊʍɐɪɯɟ ɑɨɥɔɯʇƐɹɔɹʇɯɐɹɹɐɥɯɐɹɔɹɒ
ɑɹɔʌɪɛɹoʌʌɐɪ ʌʌɔʊɨʇƐɹɯɔʊʍɹoɥɔɯɔ ɯɹoɥɯƐɹʃɹɯɔʊʍɹoɥɔ
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HOW DOTH THE LITTLE BUSY BEE

TWO LITTLE CHICKENS

JOACHIM DU BELLAY

BY ADELAIDE B. STILWELL

THE poet Joachim Du Bellay, author of the "Hymn to Deafness," was born about 1525 in Liré, a small town in Angou, where his father was simply an esquire. The family, though poor, was very well connected, being related to those Du Bellays whose fame as soldiers and churchmen so often arrests the attention of the reader interested in the early history of France.

When Joachim reached the age of 17 his father died, and the unfortunate youth was left to the care of a harsh, unsympathetic, older brother, who grudgingly gave him a home, but bitterly opposed the lad's love of letters, and constantly urged him to the practice of arms. Before the ambitious youth had attained manhood this brother died, leaving behind him an abundance of debts, no money, and a little son for the young brother to support.

Meanwhile poverty and domestic care left Joachim no time for the studies to which he was so strongly inclined, and he was, moreover, struck down by ill health, which nailed him to a bed of cruel suffering for two long years. During his convalescence he found consolation in reading the Greek and Latin poets, and when his health returned he resolved to enter the service of the church. However, by that time his uncle, the Cardinal, came to his aid, at the same time advising him to study law. It was while studying at Poictiers that, during one of his journeys, he first encountered the poet Ronsard. Their chance meeting at a wayside inn brought to both these young men intellectual good fortune for life; they became most excellent friends, and the impetuous Du Bellay immediately decided to drop law study and live with this newfound friend in Paris. There they might ardently pursue those aims and beliefs which had been maturing in their minds for so long. They worked well together, at the same time drawing about them five other young souls with similar tastes and abilities, and these formed what they called the Pleiade, or seven stars of French poetry.

In 1552, when Joachim was 27, his uncle employed him as secretary and carried him off to Rome. This eventful journey to Italy put the ambitious young poet in full possession of his talent and brought out all his latent strength and originality. Four years he lived in Rome, moving among men of affairs, and seeing much of the great world at the brilliant courts of powerful rulers. As a keen spectator he looked on at a drama of splendor and corruption, and this he has well expressed in his book of poems, called "The Antiquities of Rome."

After three years in Rome the poet met Faustine, a graceful and beautiful young Roman lady, who inspired him with a true, warm, human love, which she reciprocated, in spite of the fact of being already married to a rich old man of jealous disposition. This husband, on learning of the attachment, promptly hid his charming wife in a convent. The rest of the story of this romance is wrapt in the haze of uncertainty; but we learn that soon after this episode young Du Bellay left Rome to return to France, where he resigned his office to busy himself with editing his poems.

From that time the life of the poet was a sad story, for his health never improved, and the deafness which he had suffered from youth increased rapidly until he was thereby cut off from society. At times he gave way to despair; but, again, he made light of the infirmity, as we shall see if we read his "Hymn to Deafness."

One night in January, 1560, when the poet was returning home from the house of a friend, he was stricken with apoplexy and died soon afterwards. No dread of death ruffled his mental serenity, and these were his words, "The Spirit re-unites with the Eternal." As one who challenges doubt, he says: "Fear death, misfortune, and discontent, those to whom the gods have given but one life!"

FROM ONE DEAF POET TO ANOTHER

HYMN TO DEAFNESS

BY JOACHIM DU BELLAY, Addressed to Pierre de Ronsard

(Translated and abridged by Adelaide B. Stilwell)

Dear Ronsard, think me not so lacking in sense
As to pose by thy side, for me, what pretense!
Thine equal, the thought is naught less than sacrilege,
As if one compared to the muses, school children;
Or some petty foreign princeling to our own noble Prince.
Like thee, have I ardently followed from youth,
What should win to me honor, not riches, but truth;
Divine rage hath possessed me to follow thy steps.
This ever hath led me to shun the great crowd
And fly from Ambition, grim Avarice to avoid,
To part also from Sloth, that nurse of all vices;
As seldom the habit of soldiers of Pallas,
But common to servants of Prelates and priests.
However, there are those who favor me too much
Comparing my poor songs to thine own divine chants,
Saying thou dost know only to give me confidence
That one is more facile; the other excelleth in wisdom.

* * * * * * *

All the good I possess, all which I prize of mine,
Is to resemble thee, without fraud or pretense,
To remain a true friend, ever to keep the faith
Also dear Ronsard; to be half deaf as thou art!
What perfect joy would that be for me,
Would that God might grant to me such happiness.
I am not one of those who in triumphant verse
Cause a fly to appear of an elephant's size;
Or like those whose minds fly easily between two wide extremes,
First praising folly and next lauding the plague,
Who, though unable to change black to white
Gaily disguise grief under the name of pleasure.
Let me say, to be deaf (and well I define the difference 'twixt good and ill)
Is not an evil, save in its appearance.

* * * * * * *

Whence comes this sorry evil which is called deafness?
Sorry only to the ignorant who fail to fortify their souls
With the divine reasonings of philosophy.
I would not here seem to belong to that sect
Who all evil deny, e'en while they agonize,
Save that which hurts and holds the soul in distress,
To them all other ills seem merely imaginary.
Such as are born deaf, are by that misfortune deprived

Of senses termed acquired, and these trouble not themselves
One may suppose, more than because they are born without wings.
Or lack the swiftness of the fleetest of deer,
The strength of the ox, or like fish live not in water,
Much regret arrives in company with wisdom
Of that good which we may not enjoy.
Can we consider it as unhappiness
Not to hold a good of which one is ignorant?
Thus might a horse or other dumb brute regret
Being unable to reason with common sense like our own.
Man is not always born a tame creature
Submitting meekly to whatever is for him ordained.
No, unlike every other animal
It is his nature to raise proudly his head to the stars.
If then because of deafness one cannot imagine
Anything beyond what his eyes rest upon
Never admitting what man has already achieved.
Him, I would estimate unhappy, as he is, or in what he hopes to be.

* * * * * * *

But Ronsard, is not by nature deaf;
'Tis through accident, and he hath through training
Acquired great knowledge. In being thus deaf
One is deprived of little good and much ill

Considering all the good received through the ears,
Most of which is due to sweet sounds that awaken our souls,
Or pleasing talk whereby our minds
Receive in hearing some contentment.
If one is deaf and deprived by that defect
Of the pleasure derived through agreeable sounds,
He is as well prevented from feeling not a few times
The annoying discord of a wretched voice,
A false musical instrument, the tempest's loud roar,
The sad tolling bell, the noisy forge, a heavy sneeze,
A cart's jolting, the loud bray of the donkey
Complaining with a frightful sound.
And if he tastes not the fine flavor of good table-talk;
On the other hand he is not bored with the audacious cackle
Of an ignorant preacher, or the poor argument of a sorry Judge at the bar,
The babble of women, the prosiness of priests
A scolding valet, a master's complaints
The talk of buffoons, or the court's brutal jests.
Who then would not wish for deafness a hundred times a day?
But to be deaf among the young ladies is unbecoming!
Ah, happy the deaf man, who had naught to do with them,
Needing not to entertain them. For if he perceives not their jokes
By fault of losing the talk, he must not astonish them
Nor need he bite his tongue blushing to have made a foolish speech.
But he is suspicious, and he believes in his heart
That he serves them with food for mockery.

In having this idea he is a foolish man
He must not think thus, on the contrary
He must believe only what they tell him.
Then he is not called to the councils of the lords!
Ah, how often may such honors be bought
From those who carry secrets in their ears
Which by lightness of lip they allow to escape.
Again he is taciturn and happier thus;
For to whom does not most talk carry but fatigue
And our deaf man may remain silently at ease
Without displeasing others by his long silence,
Talking but to entertain his own friends.
Under such circumstances cannot one the better write friendly letters
Discoursing thus with finer effect than by word of mouth?
If it is great pleasure to chat with some wise talker,
Is it not as pleasing to read an excellent book?
Which setting our soul from the body free
Afar it wingeth its way where it may see without eyes
The secrets of Nature, the wonders of the skies.
Those who deeply dive into the wisdom of philosophy
Care not to retain the mere sight of the eye;
For they heed naught, save that which the mind doth see.
Such can better divert themselves than with mere noise.
Thy deafness, Ronsard, hath caused thee to retire
Far from the Court's pleasure, and the gaze of the crowd
To follow a footpath hitherto unbeaten,
A difficult path which leadeth to Virtue
Who alone hath woven that immortal crown
Of unfading myrtle, which adorneth thy brow.
Well dost thou deserve thy laurels,
France, oweth thee laurels, and must needs pay her debt;
That in future she may honestly extol herself
For *Horace* and *Pindar,* yea even for *Homer!*
Then, Ronsard, how canst thou of deafness complain?
Ah, happy thou art, when by a river's brink,
Or deep in shady grove thou dost wander bristling with thoughts,
Book to chest, weaving those pleasant phrases
With which, only too well thou dost know how to enrich thy songs.
Then, no bark of dog, nor cry of savage beast,
Nor noise of rushing torrent doth trouble thy mind.
When sweet thoughts so gently spur thee on
Then, Ronsard, doubtless thou dost desire nothing;
Not song of bird, nor music of mountain stream.
Thou hast with thee for companion gentle deafness,
Who commandeth silence, and taketh care that noise
Comes not near to hinder the joy of thy work.
There is even harmony in such a world
For those who have a ringing in the ear,

When betimes they hear the roaring of a torrent;
Or again the silvery voice of gently murmuring brook;
Or perhaps when falling asleep one hears as in a reservoir
The soothing sound of water which falleth drop by drop.
Some even claim that these sounds may equal heavenly music.
Dull then must be the souls who through deafness
Are not made partakers with divinity.
Look then, if such melody dwelleth
In a deafened ear, doth not deafness give double benefit,
Compensating us for the seeming evil it makes for us.
Even as those Gods and Goddesses of old
Surrounded mortals with bitter and sweet at once?

* * * * * * *

Ah, ofttimes I say, happy those who from the Gods receive
The gift of deafness. They also who with eyes see not;
For those who see and hear not all in this our age,
Escape much which must offend both Gods and men.
Thee, I salute, O Kind and Holy Deafness
Who, for palace and throne of thine august majesty,
Hath chosen a distant cave beneath the hardest rock,
Carpeting with soft moss and tender green the way to thy sure retreat.
There a strong barrier protects thine awesome tower,
Where even the Cataracts of the Nile may rage about in vain!
Within one findeth Silence seated on the right
Finger upon lip; at the left is seated
Melancholy, with eyebrows drawn together,
Study, with gaze bent upon her lowered book
Sitteth down lowly. The Imaginative soul
With eyes raised heavenward holdeth herself in contemplation
Standing facing Study. And there within the circle
Of a huge steel mirror, one may see to the end
All that is in the heavens, or the earth, or underneath the seas.

Even that which lieth hidden in earth's profoundest depths.
Grave judgment sleepeth upon the breast,
While winged discourses flit all about thee.
Then, Oh great Deafness, teacher of wisdom,
Nurse of reason, Goddess, I pray thee,
For reward of having thus extolled thy merits,
And having in thy praise this canticle sung,
Be favorable to me, and if some might be angry
Enviously wishing to outrage thy name,
May they one day feel thy powerful deity,
Thus learning even as I, what thou Deafness art in truth.

AN OUTLINE OF THIRD-YEAR WORK IN ARITHMETIC, WITH METHODS*

BY BARTON SENSENIG

REPETITION is necessary to fix ideas in the mind, and the work of the preceding year should be reviewed before new work is attempted. The illustrations, with objects, should be repeated, as well as the statements of fact which the pupils have learned. Pupils sometimes repeat glibly what is not well understood. A county superintendent, in making his rounds, came to a rural school in which the pupils were reciting grammar in a very rapid way. He asked one of the boys to define a noun. The answer came quickly, "A noun is the name of a person, place, or thing." The superintendent asked for an example. "An organ-grinder" was the response. "Correct, but what made you think of an organ-grinder?" "Why, an organ-grinder is the name of a person who plays a thing," was the reply. The boy evidently did not understand the definition of a noun. In our repetition work we want to remember only such things as are well understood. In the work of the first two years we have been appealing to reason and we shall continue to do so in presenting third-year work.

NUMERATION AND NOTATION

In this grade we shall review the reading and writing of numbers to thousands and enlarge the field to ten-thousands. To facilitate the reading of numbers, we shall lay down this scheme:

thousands	ones
***	***
5,	048
25,	320
20,	008

We shall call attention to the first number written below the scheme. We show that the five is separated from the rest of the number by a comma, because it is five thousand, and thousands are separated from ones by a comma. We next call attention to the nought. There are no hundreds, and as all the spaces must be filled, a nought is put in hundreds' place. We write the number, *five thousand, forty-eight*, with a comma after thousand, as it comes in the scheme. We ask the pupils to observe the hyphen in forty-eight, which must always be written in like combinations. We shall ask for volunteers to read the second number under the scheme. If the pupils hesitate, we ask how many thousands there are and how many ones. We tell them that the number means twenty-five thousand, three hundred twenty ones, but that the word *ones* is not used. The word *and* should not be used until the decimal point is involved. The third number written under the scheme further impresses the fact that all spaces must be filled. There are only eight ones, so the tens' and hundreds' places must contain noughts.

* This is the third of a series of articles by Mr. Sensenig. The work of the first and second years was covered in the January and February issues of this magazine.

Write a variety of numbers within the ten-thousand limit under the scheme and have the pupils read them. Then speak numbers and have the pupils write them under the scheme. Erase the scheme and have the pupils write the numbers in Arabic without the scheme and with the comma after the number of thousand. Write numbers in Arabic and have the pupils write them in words. Speak numbers and have the pupils write them in words. Have pupils speak numbers for other pupils to write in Arabic.

ADDITION

Enlarge on the addition work previously given, using numbers with as many as four figures. Use the addition chart with the forty-five cases for exercises in speed, and for the sake of variety also use the number-circle. It will also be of interest to have the pupils stand in a row and, beginning at the "head" end of the row, ask for answers to additive combinations. Do not allow much time. The pupil who fails to read speech or to add correctly loses his place to the one farther down the line who gives the correct result.

Show pupils that only like things can be added or subtracted. You cannot add three dollars, four balls, and five boys. A little stress put on this point will help to clear up some of the reading problems. If it is asked, "How much are four balls worth at eight cents each?" the pupils will immediately know that this is neither a problem in addition nor subtraction, as only like things can be added or subtracted.

The teacher, in setting down an addition problem, puts the figures where they belong—the units in units' column and the tens in tens' column. If he sets down a problem out of order he will probably find that the pupils will add the problem as it stands. A problem like the following was set down to be added and the pupils added the numbers where they stood:

87
65
93
24

18674

The pupils did not think of the absurdity of the problem until their attention was called to it. They then set the problem down correctly and added it. The teacher appeared much amused. The pupils said, "You cannot fool us again." A few such problems will suffice. Pupils should be taught to look at problems from different angles.

SUBTRACTION

In subtraction work use ciphers freely in the minuend. In adding 1 to 4,999 we get 5,000, which is another way of saying that 5,000 less 1 is 4,999.

After a pupil fully understands this and similar cases, no subtraction question will offer much difficulty. In this example:

500,078
— 238,794
---

nine is taken from seventeen, one having been borrowed from 5,000. Cross out 5,000 and write 4,999 above it, after which there is no difficulty.

Though problems involving small numbers will be the rule in this grade, I do not believe in setting limits beyond which the teacher may not go. By attempting more than is required in grade limits, the teacher may sometimes make plainer that which is required. While teaching this subject of ciphers in the minuend I would make at least one very large problem and ask for volunteers to show how to do it. Some of the pupils will be delighted to try, and the other pupils will watch with interest to see if mistakes are made.

In submitting subtraction problems, occasionally make the minuend smaller than the subtrahend. Every figure in the minuend, excepting the one farthest to the left, may be larger than those in the subtrahend. If the pupil has not observed the figures farthest to the left, he will begin to subtract, and, after having wasted some time, will find out that the problem cannot be done. This teaches the pupil that he should look at a problem carefully before he attempts to do it.

In order to make pupils observe closely what they read, problems like this may be submitted: A boy had 25 cents and spent 35 cents; how much money re-

mained? The careless reader will take 25 from 35 and say that he had 10 cents left. Problems like these interspersed in the work will help to sharpen the pupil's wit.

MULTIPLICATION

In this grade we shall finish all the multiplication tables and employ numbers of one and two digits in the multiplier. The products should fall within the ten-thousands' limit, as the pupils have not been taught to read numbers beyond that order.

There have been various ways of multiplying employed in the past, but the method in present use is the simplest. There is no use in going into the philosophy of the method of placing the figures. Simply show the pupils that each row of figures starts in the column containing the figure by which you are multiplying.

In order to make this point stand out in bold relief, do a large problem to show how the figure farthest to the right in each row is in the column of the figure that was the multiplier to produce that row. Columns separated by light lines may be employed at first and the lines erased after the problem is finished.

The following example shows the columns:

				4	6	8	7	2
					4	3	2	1
				4	6	8	7	2
			9	3	7	4	4	
	1	4	0	6	1	6		
1	8	7	4	8	8			
2	0	2	5	3	3	9	1	2

This is another case of stepping beyond grade limits to make a point more clear.

If the multiplier contains ciphers, the ciphers may be used in multiplying just as other figures are. In multiplying by a cipher, we get a row of ciphers, and the pupils at first may be allowed to set down the problem in that way; later, they should be taught to set down the cipher in its column and proceed to multiply by the next figure.

In multiplying 20 by 20, the product is 400, which is also obtained by multiplying 2 by 2 and putting the two noughts to the right of 4. The product of 200 by 200 = 40,000, which is also obtained by multiplying 2 by 2 and putting the four noughts to the right of 4. Ten times a number is the number followed by a nought; 100 times a number is the number followed by two noughts. The pupils should be encouraged to write all such products at sight.

MULTIPLICAND AND MULTIPLIER

In multiplication, the multiplicand is the number to be taken, and the multiplier shows how many times the multiplicand is to be taken additively. In the problem "What is the value of 8 pencils at 6 cents each?" we take 6 cents eight times. Though this method is adhered to in the sphere of small numbers, it is not followed in practice when the multiplicand is a small number and the multiplier a large number. In the problem "How much poll-tax is paid yearly by 275,346 voters at 25 cents each?" nobody would think of taking 25 cents 275,346 times, because 25 × 275,346 cents produces the same result and is a more convenient way of multiplying. Referring to the first problem, six times 8 cents is exactly the same as eight times 6 cents, which becomes apparent by considering the following arrangement of stars:

* * * * * * * *
* * * * * * * *
* * * * * * * *
* * * * * * * *
* * * * * * * *
* * * * * * * *

There are six rows or eight rows, depending on whether horizontal or vertical rows are considered.

Pupils who have been carefully taught in the proper use of the multiplicand and multiplier in the lower grades multiply numbers in the most convenient way later on, regardless of past training. Authors of text-books on arithmetic do not follow their own definitions for multiplicand and multiplier when it interferes with the convenient arrangement of the work; so the question of multiplicand and multi-

plier in practice is not a very important one. In many well-conducted public schools numbers are multiplied in the most convenient way, and the result of the reckoning is stated below the work. In practical business no attention whatever is paid to the two terms.

In schools for the deaf we find that it helps the pupils to label the work, especially in the lower grades, and we shall not adopt the method of stating conclusions only. It is better at first to avoid the special case of a large multiplier and a small multiplicand in order that the pupils may clearly keep in mind the meaning of the multiplication problem when concrete values are involved.

DIVISION

Division work should keep pace with the work in multiplication. At first the dividends should be the products in the multiplication tables and the divisors the factors which produce those products. In this way the division work will help to fix the multiplication tables in mind. Later, we shall introduce problems giving rise to remainders by using dividends which are not multiples of the divisors.

The long-division process may be used at first to show all the steps involved in the operation, but the pupils should be encouraged to use the short-division process when the divisors are represented by single digits. The two processes are identical in thought.

A problem is proved when the product of the divisor and quotient, plus the remainder, equals the dividend. The pupils should frequently be required to prove their problems. This helps to fix in mind the full meaning of the division problem and will lead pupils to correct their own errors.

The order of increasing difficulty for this grade may in a measure be represented by the following problems:

8)24(6)33(8)544(9)94(9)905(

20)480(34)1020(51)1046(25)5075(

78)3081(

Division problems should also be presented in this form:

$24 \div 8 =$	$94 \div 9 =$	$1020 \div 34 =$
$33 \div 6 =$	$905 \div 9 =$	$1046 \div 51 =$
$544 \div 8 =$	$480 \div 20 =$	$5075 \div 25 =$

$$3081 \div 78 =$$

In this way of setting down division problems the dividend always comes first, whether it be larger or smaller than the divisor. Unless stress is laid on this point, the children form the conclusion that the larger number is always to be divided by the smaller, which notion is eradicated with difficulty when we come to the subject of decimals.

The pupils must not be in doubt about which is the divisor when the division problem is in the statement form. Problems should be submitted in this form frequently. In division of fractions the divisor is inverted, and if pupils have not had division problems in the statement form, they are apt to invert the dividend, because it stands first in the statement form, whereas it always stood second in the other form, which they have been using.

TYPICAL ERRORS IN DIVISION

The most common error in division is forgetting to put noughts in the quotient when they are required. In the problem $5075 \div 25$ the quotient is 203, but children will write 23. The teacher must insist that each time a figure is brought down from the quotient an attempt at division must be made, and if the divisor is not contained in the number, a nought must be put in the quotient. If the pupil who puts down 23 instead of 203 is asked to prove the result, the error is discovered, but much time is taken in finding it.

This error is common among hearing pupils, as well as among the deaf, and the method of setting the quotient above the dividend has been devised to overcome the error. In the problem above alluded to the quotient would appear as follows:

```
  203
 ----
25)5075
   50
  ---
   75
   75
  ---
```

25 goes into 50 two times and the 2 is set above the nought, and after that there must be a figure in the quotient for each figure of the dividend. This helps to straighten out the matter.

Another way of impressing the matter on the child's mind is to submit many problems involving noughts in the quotient, so that the case occurs a sufficient number of times to enable the child to master the difficulty. The following problems contain the point above referred to:

640 ÷ 8 =	2,277 ÷ 11 =	1,908 ÷ 18 =
945 ÷ 9 =	2,508 ÷ 12 =	24,072 ÷ 24 =
2,436 ÷ 12 =	7,625 ÷ 25 =	74,111 ÷ 37 =

Another error that pupils make consists in looking only at the tens' digit of the divisor when two digits are involved. In the problem 3081 ÷ 78 seven is contained in 30 four times; but 78 is almost 80, and 8 should therefore be considered as the trial divisor rather than 7.

When the divisor contains two digits, the units' digit at first should be of small value, either 0, 1, or 2, so that pupils will not err in being guided by the tens' digit; then a set of problems should be given to show the importance of taking the units' digit in consideration, as follows:

93 ÷ 19 =	144 ÷ 39 =	106 ÷ 58 =
72 ÷ 29 =	836 ÷ 17 =	246 ÷ 28 =
67 ÷ 18 =	307 ÷ 16 =	3,058 ÷ 17 =
		etc.

It is worth while to call attention to the influence of the units' digit in determining the proper digit to be put in the quotient. Some pupils display very poor judgment in their choice of a digit for the quotient and waste much valuable time.

Another typical error consists in having a remainder greater than the divisor, as is illustrated in the following problem:

```
18)4878(2611
   36
   --
  127
  108
  ---
   19
   18
   --
    18
    18
    --
```

Considerable fuss should be made over this error from the beginning. The teacher must make it appear that the mistake is inexcusable. After taking considerable time in trying to prove that the result is correct, the pupil discovers his error; but the main point is not to have the pupil commit the error again.

MEASUREMENTS

No table of measurement should be taught unless the pupils have with actual measures verified every statement. By the end of the year the pupils should fully understand each of the following statements:

10 units (ones) = 1 ten.
10 tens = 1 hundred.
10 hundreds = 1 thousand.

2 pints = 1 quart.
4 quarts = 1 gallon.

12 inches = 1 foot.
3 feet = 1 yard.
36 inches = 1 yard.

12 units = 1 dozen.

2 pints = 1 quart.
8 quarts = 1 peck.
4 pecks = 1 bushel.

60 seconds = 1 minute.
60 minutes = 1 hour.
24 hours = 1 day.
7 days = 1 week.
12 months = 1 year.
365 days = 1 year.
100 years = 1 century.

10 cents = 1 dime.
10 dimes = 1 dollar.
100 cents = 1 dollar.
25 cents = a quarter.
50 cents = a half-dollar.

Pupils should be taught to read the clock and the thermometer and be made familiar with the square and the oblong. They should *not* be taught that four weeks make a month.

ROMAN NOTATION

In this grade Roman notation should be taught to L = 50. In writing 49 in Roman, show the pupils that they must first put down the notation for 40 and after that the notation for 9. Thus:

$$\begin{array}{r} 40 = \text{XL} \\ 9 = \text{IX} \\ \hline 49 = \text{XLIX} \end{array}$$

Lay stress upon the fact that no letter repeats four times, and when a letter of small value is placed before one of greater value, the difference of their values is expressed; but when placed after it, the sum of their values is expressed. Thus: V = 5, IV = 4, VI = 6, X = 10, IX = 9, XI = 11.

$$19 = 10 + 9 = \text{XIX}$$
$$28 = 20 + 8 = \text{XXVIII}$$
$$34 = 30 + 4 = \text{XXXIV}$$
$$46 = 40 + 6 = \text{XLVI}$$

CONCRETE PROBLEMS

In third-year work operations should be limited to two steps in a problem.

Type problems:

(1) In one school there are 218 pupils; in another, 275 pupils; in another, 314, and in another, 295. How many pupils are there in the four schools?

(2) A farmer had 24 cows and bought 10 cows; then he sold 15 cows. How many cows had he left?

(3) A boy has 24 chestnuts. How many more must he get to have 36 chestnuts?

(4) A man bought a hoe for 60 cents and some nails for 20 cents. How much change did he have left from a dollar?

(5) Mary has 28 dollars; John has 6 times as much. How much money do they both have?

(6) There are 48 packs of tea in one box. How many packs are there in 37 boxes?

(7) In an orchard there are 1,152 trees set in 8 equal rows. How many trees in each row?

(8) A boy went to a store with 50 cents and bought 3 bags of peanuts at 5 cents a bag. How much change did he get?

(9) A room is 20 feet long and 16 feet wide. How many feet around it?

(10) If pencils are selling at 3 cents each, how many can I get for 20 cents, and how much money is left for candy?

(11) A man received $2,025 a year and spent $1,575. How much did he save?

(12) A woman earns $12 a week and spends $9 a week. How long will it take her to save $30?

(13) John rode 42 miles on his bicycle; Harry rode 23 miles less than John. How far did both ride?

(14) A man bought 6 horses at $240 each and some cows for $480. What was his bill?

(15) How many feet of fence around a garden which is 64 feet square?

(16) A farmer had 128 sheep; he sold 70 and 12 died. How many had he then?

(17) How many cents in 2 dollars and 20 cents?

(18) How many feet in 6 yards and 2 feet?

Mr. B. P. Jones, superintendent of the London County Council's Blind and Deaf Schools, has succeeded to the position of chairman of the National Association of Teachers of the Deaf of Great Britain and Ireland, *vice* Dr. W. H. Addison, of Glasgow. Mr. Jones has for a great number of years been associated with the Association and has always been an earnest member of its Executive Committee.

The College of Teachers of the Deaf and Dumb have arranged to hold their fourth holiday course for teachers at the Royal Institution for the Deaf, Derby, during Easter week. The lecturers include Miss M. Hare (Speech and Speech-reading), Dr. J. Kerr-Love (Anatomy and Physiology), Dr. W. H. Addison (Principles of Education), Mr. G. H. Greenslade (History of the Education of the Deaf), and Mr. F. G. Barnes (Language). Special lectures will be given by Mrs. Barnes and by Mr. Barnes.

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